

CURRENT

Pulse



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Citizenship (Amendment) Rules, 2026

Ministry of Home Affairs Notified the Citizenship (Amendment) Rules, 2026 It aims to streamline processes concerning Overseas Citizen of India (OCI) cardholders and tightening passport norms for minors.



Key Highlights

- **Dual Passport Ban for Minors:** A new proviso mandates that a **minor child cannot** at any time hold the passport of any other country while also holding the Indian passport.
 - Under the **2009 rules**, parents **registering** the birth of a **child born outside India** at an Indian consulate had to declare that the child **did not hold any other country's passport**.
- **e-OCI:** OCI status can now be issued in an electronic format (e-OCI) alongside traditional physical cards.
- **Mandatory Online OCI Applications:** OCI processes, including registration, are now completely online via a designated portal (ociservices.gov.in).
- **Digital Renunciation:** Streamlines **renunciation and cancellation** procedures of OCI, including mandatory surrender of physical cards and digital acknowledgment.
- **Fast Track Immigration (FTI) Consent:** OCI applicants may now **consent** to share **biometric data** for automatic registration under the **Fast Track Immigration Programme**.
- **Appellate Mechanism:** Revisions against OCI-related orders will now be handled by an authority **one rank higher** than the original deciding authority.

About the Overseas Citizen of India (OCI) scheme

- Introduced via the **Citizenship (Amendment) Act, 2005** of the Citizenship Act, 1955.
 - In 2015, the Person of Indian Origin (PIO) card scheme was merged with it.
- **Eligibility:**
 - Who were citizens of India on 26th January, 1950 or there after or were eligible to become citizens of India on 26th January, 1950
 - **Exceptions:** Who is or had been a citizen of **Pakistan, Bangladesh** or such other country as the government may specify.
- **Benefits:**
 - **Multiple entry, multi-purpose lifelong visa** to visit India.
 - Exemption from reporting to Police authorities for any length of stay.
 - **Parity with NRIs** in financial, economic and educational fields **except** in the acquisition of agricultural or plantation properties.
- **Does not confer political rights** such as voting or holding constitutional posts.
- OCI is a privilege, not an entitlement, and is **liable to cancellation for violations of Indian law**.

e-Court Mission

Chief Justice of India declares Sikkim to be the first paperless state judiciary in the country.



- A fully paperless judiciary is a system in which **all legal processes are done electronically** rather than through physical paper, using measures such as digital files, e-filing, online hearings, digital case tracking etc.
- Such digital transformation of courts is being undertaken under e-Courts Mission Mode Project.

e-Court Mission Mode Project

- Pan-India initiative to **computerise and digitise the judiciary** for delivering efficient and accessible justice services.
- **Launch:** Launched in **2007** under the National e-Governance Plan (NeGP).
- **Implementing Authority:** Department of Justice under the guidance of the e-Committee of the Supreme Court of India.

Number of Judges of Supreme Court

The bill seeks to amend the Supreme Court (Number of Judges) Act, 1956 to increase the judge strength of the Supreme Court from present 33 to 37 (excluding the Chief Justice of India (CJI)).

- **Article 124 of the Constitution of India** provides for the **establishment of the Supreme Court** and **empowers Parliament to determine the number of judges** over time.
 - Parliament enacted The **Supreme Court (Number of Judges) Act, 1956** to fix the number of judges of SC at 10 (excluding the CJI).
 - SC's strength was then subsequently increased by amendments in 1977, 1986, 2008 and 2019.
- Once the amended law comes into force, the **Supreme Court Collegium** would recommend judges to the government for appointment to the top court.
 - **Chief Justice of India (CJI)**, in consultation with collegium members, **initiates the proposal for appointment** of judges in Supreme Court.
 - Collegium's recommendations are sent to Union Law Minister, who submits them to the Prime Minister, who in turn advises President to formally appoint the judges.
- **Significance:** Additional judges will help in **faster disposal of cases, timely delivery** of justice, and reducing pendency of cases.
 - Presently, Supreme Court has total **92,926 pending cases**.

Four Parliamentary Committees reconstitutes

Lok Sabha Speaker reconstitutes four Parliamentary Committees for 2026–27 Parliamentary Committees are panels of Members of Parliament formed to scrutinise the functioning of the government and to uphold executive accountability.



- **Two types:**
 - **Standing Committees (Permanent and Regular):** Includes Financial Committees and 24 Departmentally Related Standing Committees (DRSCs).
 - **Ad hoc Committees** (Constituted for specific purpose and cease to exist on finishing their task): Includes Select and Joint Committees on Bills.

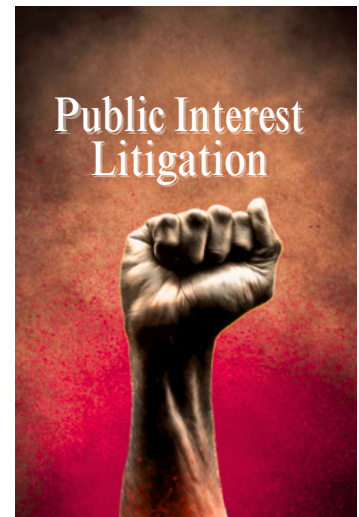
Role of Parliamentary Committees

- **Continuous legislative oversight:** Act as a vigilant mechanism to monitor executive actions beyond the limited time of Parliament sessions.
- **Detailed scrutiny of policies and laws:** Enable clause-by-clause examination of bills, ensuring informed decision-making and reducing executive arbitrariness.
- **Performance evaluation of government bodies:** Committees such as the Committee on Public Undertakings assess efficiency and functioning of PSUs.

Issues with Parliamentary Committees

- **Non-binding recommendations:** Committee reports are advisory in nature.
- **Short tenure and frequent reconstitution:** Most committees like DRSCs, have a tenure of only one year.
- **Delay in constitution of committees:** Disrupt their functioning and reduce efficiency.
- **Bypassing of committees:** Important laws (e.g., abrogation of Article 370, Chief Election Commissioner and Other Election Commissioners Bill, 2023) were passed without committee examination.
- **Low attendance and absenteeism:** Reduces effectiveness and depth of discussions.
- **Others:** Absence of expert advisers (Venkatachaliah Commission).

Public Interest Litigation



Supreme Court Judges expressed concern about misuse of Public Interest Litigation (PIL) The judge observed that PILs, originally meant to advance social justice and improve access to justice, are increasingly being misused as private, publicity, political and even paisa interest litigations.

About Public Interest Litigation

- **Definition:** It refers to the litigations, filed by a party without any **locus standi** (i.e., the party who is not aggrieved), to protect the **general public interest**.
- **Origin:** PIL concept began in the late Nineteenth Century in the **United States**, with the landmark **Gideon's case** forming its foundation.
 - Efforts of **Justice P N Bhagwati and Justice V R Krishna Iyer** were instrumental in initialization of PILs in India.
 - In India, first reported instance of PIL is when Justice Bhagwati ordered release of 70 undertrial prisoners in **Hussainara Khatoon Case, 1979**.
- The **Supreme Court and the High Courts** have the right to admit PILs under **Articles 32 and 226**, respectively.

Challenges

- **Misuse of PIL:** PIL has often been used for publicity purposes, personal gains, vendetta politics, thus weakening public trust.
- **Burden on Judiciary:** PIL cases are often **prioritised over ordinary pending cases**, increasing pressure on courts and delaying other matters.
- **Judicial Overreach Concerns:** PIL has faced criticism for the **judiciary overstepping its jurisdiction** and facing difficulties in ensuring implementation of its orders.
- **Others:** Frivolous Litigation, Abuse of liberal locus standi etc.

REASONS FOR GROWTH OF PIL		
Factors Behind the Growth of PIL		Explanation
	1. CONSTITUTIONAL SUPPORT	Provisions under Part III (Fundamental Rights) and Part IV (Directive Principles of State Policy) created a strong foundation for judicial action in public welfare matters.
	2. ENSURING ACCESS TO JUSTICE	PIL evolved as a mechanism to assist poor and marginalized sections who were unable to seek justice because of costly and complicated legal procedures.
	3. JUDICIAL ACTIVISM AND INNOVATION	The judiciary adopted a socially sensitive approach in important cases such as <i>Bandhua Mukti Morcha</i> and the <i>Asiad Workers Case</i> .
	4. WELFARE-ORIENTED LEGISLATIONS	Laws concerning bonded labour, minimum wages, land reforms, and environmental conservation strengthened the role of courts in protecting vulnerable groups.
	5. FLEXIBLE LOCUS STANDI PRINCIPLE	Courts permitted socially conscious individuals or organizations to file petitions on behalf of disadvantaged people. They also initiated <i>suo motu</i> proceedings using media reports and letters.
	6. BROAD INTERPRETATION OF ARTICLE 21	The Right to Life was interpreted widely to include rights related to dignity, legal assistance, education, livelihood, and freedom from inhuman treatment.

Appointment of Election Commission of India

Appointment Procedure of Election Commission is 'Tyranny of Elected': Supreme Court

Current Appointment Procedure of Election Commission of India (ECI)

- **Constitutional Provision:** Article 324(2) provides for CEC and ECs to be appointed by the President, subject to any law made by Parliament.
- **Statutory Provision:** The CEC and Other Election Commissioners Act, 2023 (replaced the 1991 Act), enacted in response to the Supreme Court's 2023 Anoop Baranwal judgment (which had mandated a selection panel of PM, LoP, and CJI until Parliament legislated).
 - **Process includes:**
 - **Search Committee** (headed by Cabinet Secretary) prepares a panel of 5 eligible candidates.
 - **Selection Committee** recommends one name to the President.
 - Selection Committee consists of **Prime Minister (Chair), One Union Cabinet Minister & Leader of Opposition** (or leader of largest opposition party in Lok Sabha).
 - **Eligibility:** Persons who hold/have held a post equivalent to Secretary to the Government of India.

Concerns Regarding the Appointment Procedure

- **Executive Dominance:** Government enjoys 2:1 majority in Selection Committee (PM + Cabinet Minister vs LoP).
- **Search Committee Bypass:** Selection Committee can ignore the shortlisted panel and pick "any other person".
- **Appointments despite vacancies:** Appointments allowed even if Selection Committee has vacancies, enabling ruling party dominance.
- **Other: Bureaucratic Monopoly** (Only Secretary-rank officers eligible); **Status Downgrade** (Salaries and conditions aligned with Cabinet Secretary, not Supreme Court judge level).

Suggestions on Composition of Selection Committee for Appointment of CEC & ECs

- **Tarkunde Committee (1975), Goswami Committee (1990) and Law Commission (255th Report, 2015):** Recommended a three-member collegium consisting of the Prime Minister, LoP in the Lok Sabha, and the CJI.
- **National Commission to Review the Working of the Constitution (2002):** recommended a panel comprising of Prime Minister, LoP in Lok Sabha, LoP in Rajya Sabha, Speaker of Lok Sabha & Deputy Chairman of Rajya Sabha.
- **2nd ARC Report (2007):** A collegium consisting of the PM, Speaker of the Lok Sabha, LoP in the Lok Sabha, Law Minister and the Deputy Chairman of the Rajya Sabha.

Global Best Practices:

- **United Kingdom:** The recruitment of electoral commissioners is overseen by the Speaker's Committee on the Electoral Commission, which includes MPs.
 - The recommended candidates are then approved by the House of Commons and formally appointed by the monarch.
- **United States:** The Commission is appointed by the President and must be confirmed by the Senate.
 - Members are barred from holding other federal executive, legislative, or judicial positions at the time of their appointment.

Governor's Role in Government Formation

In the recent Tamil Nadu Assembly elections, no single party secured a clear majority (hung assembly), making the role of Governor in government formation crucial.

Role of the Governor in forming a government

Constitutional provision:

- **Article 164(1):** The Chief Minister (CM) of a State shall be **appointed by Governor**, while other ministers shall be appointed by Governor on the advice of the CM.
 - The Constitution **does not prescribe any criteria** for selecting CM during **hung assembly**.
- **Discretionary power (Article 163):** The Governor functions in accordance with the aid and advice of the Council of Ministers with the CM, except certain functions where **discretion** is exercised.
 - In case of no party having a clear majority, the Governor exercises **situational discretion**.

Sarkaria Commission (1987) Recommendations:

- When a single party **secures a clear majority** in the Assembly, the Governor invites the **leader** of that party to form the government.
- However, in case of **no party having a clear majority**, it suggested an **order of preference for selecting a CM**:
 - Pre-poll alliance,
 - **Largest single party** with outside support,
 - Post-poll coalition,
 - Post-poll alliance with external support.

Potential Concerns: Governors have, on certain occasions (E.g. Goa and Manipur in 2017), appointed Chief Ministers **without following order of preference**.

Supreme Court judgements related to Governor's discretionary powers

- **S. R. Bommai v. Union of India (1994):** The Governor must invite the leader of the party commanding a majority in the House, or the **single-largest party/group**, to form the government.
- **Rameshwar Prasad case (2006):** It held that **'floor of the House'** is the constitutionally ordained forum for **testing the majority support** enjoyed by a government.

Suggestions:

- **Punchhi Commission (2010):** Advocated for clear guidelines on the Governor's discretionary powers during a hung assembly to limit arbitrary choices.
- **Justice Kurian Joseph Committee:** Incorporate a new schedule into the Constitution to **codify** the rules governing the Governor's use of discretionary powers.

‘One Case One Data’ and ‘Su Sahay’

The Chief Justice of India launched two major digital initiatives to streamline judicial administration and enhance access to justice.



About the Digital Initiatives

- **One Case One Data:** A unified case management system integrating multi-level databases of taluka courts, District Courts, High Courts and Government.
 - **Aim:** Automates data retrieval and verification, enabling seamless tracking, reducing duplication, and extending reciprocal access to High Courts and government departments.
- **Su Sahay:** An AI-powered assistance chatbot developed by the National Informatics Centre and the Supreme Court Registry.
 - Integrated into the Supreme Court website, it aims to help stakeholders access case information and navigate court services efficiently.

Key Labour Force Indicators

Periodic Labour Force Survey (PLFS) Quarterly Bulletin (Jan-Mar 2026) estimated declining Unemployment Rate (UR) in urban areas while Regular wage employees in rural areas witnessed a rise.



- There was an increase in rural employment in both secondary and tertiary sector.

Key Labour Force Indicators

- **Labour Force Participation Rate (LFPR):** 55.5%.
 - LFPR is the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- **Worker Population Ratio (WPR):** 52.8%.
 - WPR is the percentage of employed persons in the population.
- **Unemployment Rate (UR):** in urban areas stood at 6.6%.
 - UR is the percentage of persons unemployed among the persons in the labour force.

constitutionalism

The Supreme Court observed that while India is a constitutional democracy where majority rule prevails, courts must test decisions against constitutional principles.



- These remarks were made by a nine-judge Constitution bench reviewing the scope of religious freedom.

About Constitutionalism

It refers to a system in which the **government's power is limited by a constitution**.

Significance

- **Safeguards Rights:** Protects fundamental freedoms from state interference.
- **Upholds Rule of Law:** Ensures that everyone is subject to fair and stable laws. E.g., Article 14 (Equality before law).
- **Protects Democracy:** Guarantees fair elections and ensures power rests with the people.
- **Ensures Accountability:** Uses independent oversight (e.g., CAG) to keep the government transparent.
- **Separation of Power:** Divides authority among branches to prevent any single entity from dominating.
- **Checks Majoritarianism:** Ensures that majority rule does not infringe on rights of marginalized groups. E.g., Article 29,30 safeguarding rights of linguistic and religious minorities.

Challenges with Constitutionalism

- **Rise of authoritarian tendencies** undermining constitutional principles.
- **Judicial Overreach** challenging the principle of separation of power.
- **Governance Issues** such as corruption can erode public trust in democratic institutions.

Cases Related to Constitutionalism:

- **Kesavananda Bharati v. State of Kerala (1973):** Established the Basic Structure Doctrine and held that amendments cannot alter the core principles of the Constitution.
- **Rameshwar Prasad v. Union of India (2006):** Observed that Constitutionalism abhors absolutism and is premised on the rule of law.
- **I.R. Coelho v. State of Tamil Nadu (2007):** Stated that the principle of Constitutionalism requires control over governmental power to ensure that democratic principles are not undermined.

Public Authority under RTI act

The Central Information Commission (CIC) held that the Board of Control for Cricket in India (BCCI) does not fall within the ambit of a “public authority” under the Right to Information (RTI) Act, 2005.



About Public Authority under RTI Act, 2005

- It is defined in **Section 2(h)** of the RTI Act.
- It states: "Public authority" means-
 - Any authority or body or institution of self-government established or constituted
 - by or under the **Constitution** (E.g., Election Commission of India)
 - by any other **law made by Parliament/State Legislature** (E.g., Reserve Bank of India)
 - by **notification issued or order** made by Government (E.g., NITI Aayog)
 - **Body owned, controlled or substantially financed by Government** (E.g., Coal India Limited)
 - **non-Government organizations** substantially financed, directly or indirectly by funds provided by Government (E.g., Educational societies such as the DAV College Trust)

10 Years of UPI

Demonstrating extraordinary scale and momentum, UPI has emerged as backbone of India's digital payments ecosystem.

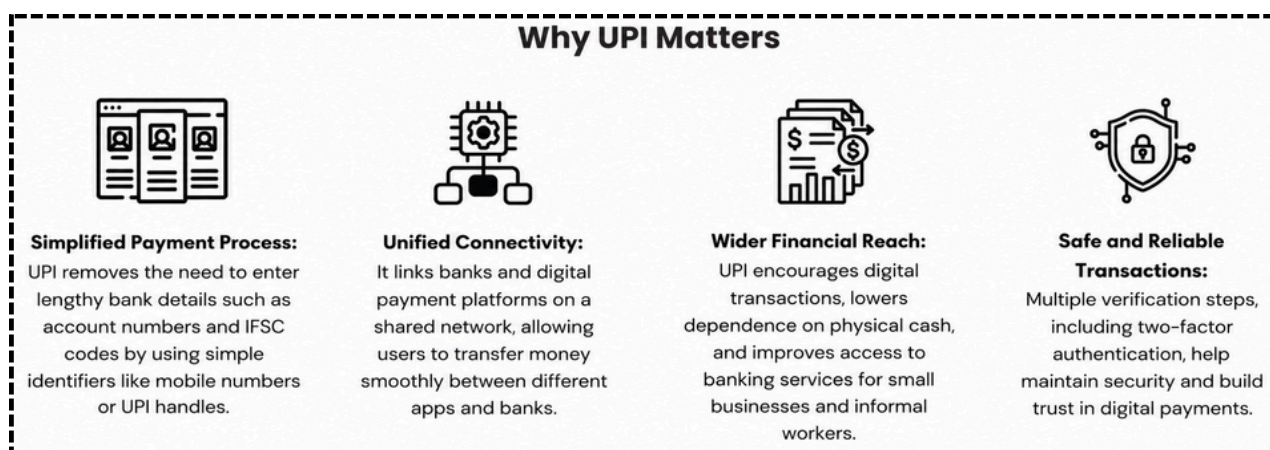


About UPI

- **Launched:** April 2016 by National Payments Corporation of India (NPCI) under Regulatory Oversight of Reserve Bank of India (RBI).
- **Meaning:** System that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

Key Achievements of UPI

- **Annual Transaction Volume:** From 2 crore in FY 2016-17 to **24,162 crore in FY 2025-26**.
 - In 2025, it processed approximately 22,000 crore transactions, with a **daily average of about 60 crore transactions**.
- **Banks Onboarded on UPI:** Increased from **44 banks in FY 2016-17** to **703 banks by FY 2025-26** covering public sector, private, small finance, payments, cooperatives, etc.
- **Global Reach:** UPI accounts for nearly **49 % of world's real-time payment transaction volume (2024)**, a feat recognized by IMF.
 - Operationalised in Countries including **UAE, Singapore, France, Bhutan, Nepal, Sri Lanka, Mauritius, Qatar**.



National Payments Corporation of India (NPCI)

- **About:** Umbrella organisation for **operating retail payments and settlement systems** in India.
- **Initiative of:** Reserve Bank of India (RBI) and Indian Banks' Association (IBA).
- **Legal Framework:** Payment and Settlement Systems Act, 2007.
- **Nature:** "Not for Profit" Company under Section 8 of Companies Act 2013.
- **Key Products offered by NPCI:** Immediate Payment Service (IMPS); National Automated Clearing House (NACH); Unified Payments Interface (UPI); RuPay; Aadhaar enabled Payment System (AePS); etc.

FDI flows in india

Reserve Bank of India (RBI) Points to Moderated Net FDI Despite Robust Inflows As per RBI, gross FDI amounted to \$88.3 billion, while net FDI inflows were \$6.3 billion (April 2025- February 2026).



About Foreign Direct Investment (FDI)

- **Meaning:** Investment through **equity instruments** by a person resident outside India in an unlisted Indian company; or in **10% or more of the post issue paid-up equity capital** on a **fully diluted basis** of a listed Indian company.
- **Regulation:** Consolidated FDI Policy (2020); Foreign Exchange Management (Non-Debt Instruments) Rules, 2019.
- **Gross and Net FDI**
 - **Gross FDI:** Total investment made by foreign entities directly into productive assets of India.
 - **Net FDI:** Difference between inward FDI flows and outward FDI flows (Repatriation by foreign firms + Outward FDI by Indian firms).

Key Reasons for Lower Net FDI

- **Rising Repatriation:** Including **disinvestment by foreign investors limiting net inflows**; repatriation is a sign of **mature market** where investors can enter/exit smoothly.
- **Higher Overseas Direct Investment (ODI):** Overseas **expansion of domestic firms** and their integration into **global value chains**; **stronger corporate balance sheets, liberalised ODI framework (2022)**.
- **Geopolitical Headwinds:** Geopolitical strife and tightening financial conditions have cooled greenfield project announcements globally.

Key Measures to Increase FDI in India

- **Sectoral Reforms:** Increased FDI caps in Sectors like Defence, Insurance, Pension, Coal Mining, Civil Aviation, etc.
 - Almost **90% of FDI is through automatic route**.
- **Improving Business Environment:** Business Reforms Action Plan (BRAP) 2024 rankings; Logistics Ease Across Different States (LEADS) 2024; Jan Vishwas (Amendment of Provisions) Act, 2023, etc.
- **Global Partnerships:** India-EU Free Trade Agreement (FTA); India-Oman Comprehensive Economic Partnership Agreement (CEPA); etc.

FDI in Insurance Sector



Finance Ministry notifies FDI easing for foreign firms with up to 10% Chinese stake under FEMA It allows overseas entities having a Chinese shareholding of up to 10% to invest in India under the automatic route.

- In 2020, India had imposed curbs on FDI from nations with which it shares land borders.

Other Change in FDI Rules:

- **100% FDI in Insurance:** In private insurance companies and intermediaries, such as brokers, without needing prior government approval (automatic route).
 - Foreign investment in the **Life Insurance Corporation of India (LIC)** remains strictly capped at **20%**.
- These changes were officially implemented through the **Foreign Exchange Management (Second Amendment) Rules, 2026**.
- **Significance:** Enhanced FDI inflows, ease of doing business, etc.

Regulatory Framework for FDI in India

- It is done through the **Foreign Exchange Management Act (FEMA), 1999**.
 - **Administered by:** Reserve Bank of India.
 - **Nodal Body:** The Enforcement Directorate under Ministry of Finance.
 - **Objective of FEMA:**
 - Regulate and update foreign exchange laws.
 - Facilitate external trade, payments, and foreign investment.
 - Develop and maintain a stable foreign exchange market in India under Government policy.
- **Entry Routes for FDI in India:**
 - **Automatic route:** Does not require the prior approval of the Government.
 - **Government Route:** Foreign investment received under this route shall be in accordance with the conditions stipulated by the Government in its approval.

Mission SAKSHAM

Reserve Bank of India (RBI) launched Mission SAKSHAM, a mission-mode, sector-wide, all-India capacity-building training initiative for UCBs (Urban Co-operative Banks).



- UCBs are subset of cooperative banks operating primarily in urban and semi-urban areas.

About Mission SAKSHAM

- It aims to conduct a large number of training programmes (in-person and e-learning courses) for UCBs.
- Covers Various Target groups including Board Members, Senior Management, Heads of Risk, Compliance and Audit functions, and employees working in IT functions and other critical areas.
- Designed in consultation with Umbrella Organisation of UCBs and National / State Cooperative Federations.

IS-PCMR

Ministry of Mines approved 58 companies under Incentive Scheme for Promotion of Critical Mineral Recycling (IS-PCMR as eligible for participation).



Incentive Scheme for Promotion of Critical Mineral Recycling

About IS-PCMR

- Notified on October 2025, scheme is a part of National Critical Mineral Mission (NCMM).
- **Ministry:** Ministry of Mines
- **Aim:** Develop domestic recycling capacity for critical minerals reducing import dependence, and supporting clean energy and advanced manufacturing sectors.
- **Tenure:** 6 years (from FY 2025-26 till FY 2030-31).
- **Financial Outlay:** ₹1,500 crore.
- **Eligible Feedstock:** E-waste, Lithium Ion Battery (LIB) scrap, and scrap other than e-waste & LIB scrap e.g. catalytic convertors in end-of-life vehicles.

Windfall Tax

Centre cuts windfall tax on diesel & jet fuel exports in line with the price fluctuations in the international market due to the West Asia war.



About Windfall Tax

- It is a **government levy on extraordinary profits** earned by companies or individuals due to **unexpected circumstances**.
- This occurs when **global events**, such as geopolitical tensions or commodity **price surges**, lead to **windfall gains for certain sectors** (E.g. oil and gas).
- **Objective:** To capture a portion of these unexpected gains to fund public projects, reduce deficits, or redistribute wealth.

Gig workers

Karnataka operationalised a grievance redressal mechanism for gig workers and Telangana becomes fifth state to adopt gig workers legislation, following Karnataka, Rajasthan, Bihar and Jharkhand.



About Gig workers

- **Definition:** The Code on Social Security, 2020, defines a gig worker as a person who works outside a traditional employer-employee relationship.
- **Types:** Platform and Non platform-based workers.
 - **Platform workers** are those whose work is based on online apps or digital platforms. E.g., Ola, Zomato, Urban Company, etc.
 - **Non-platform gig workers** are generally casual wage workers and own account workers in the conventional sectors, working part-time or full time.

Annual report of Directorate of Enforcement (ED)



Assets attached in money laundering cases rose 23-fold between 2005-14 and 2014-24.

- Money Laundering covers any process or activity connected with the proceeds of crime and is a **process** that typically follows three stages to finally release laundered funds into the legal financial system:
- **Placement** (i.e. moving the funds from direct association with the crime)
- **Layering** (i.e. disguising the trail to foil pursuit)
- **Integration** (i.e. making the money available to the criminal from what seem to be legitimate sources)

Other Key findings of Annual Report

- **Performance under Prevention of Money-Laundering Act, 2002 (PMLA): ED maintained a formidable conviction rate** in money laundering cases is approx. 93–94%.
- **Properties worth ₹2,178.34 crore** have been confiscated under the **Fugitive Economic Offenders Act, 2018**.

Impediments faced by ED in completion of PMLA trials

- **Requirement of prosecution sanction** under Section 197 CrPC (now Section 218 BNSS).
- **Limited geographical spread** of Special Courts, which are predominantly located in metropolitan and Tier-I cities.
- **Complexity of financial investigations** which requires detailed forensic analysis that takes time to record and prove during trial.
- **Requests to foreign jurisdictions face delays** due to legal complexities and some countries' reluctance or refusal to share information.

Directorate of Enforcement (ED)

- **Genesis:** It was established on **1st May 1956** as "Enforcement Unit" under the Department of Economic Affairs for enforcing **Foreign Exchange Regulation Act, 1947 (FERA)**.
 - Presently, it operates under the **Department of Revenue, Ministry of Finance**.
- **HQ:** New Delhi.
- **ED is entrusted** with the implementation of the following legislations:
 - The Foreign Exchange Regulation Act, 1973
 - The Foreign Exchange Management Act, 1999
 - The Prevention of Money Laundering Act, 2002
 - Fugitive Economic Offenders Act, 2018

Critical Minerals Imports of India

A recent study by Institute for Energy Economics and Financial Analysis highlights that India's critical mineral imports remain heavily concentrated in a few countries.



Highlights of report

- **Key Mineral Suppliers of India:**
 - **Cobalt:** Finland
 - **Copper:** Tanzania, Japan
 - **Lithium:** Ireland, Chile, China
 - **Graphite:** China
 - **Nickel:** Australia, Belgium
- **Import Dependence:** India is **100% import-dependent** for lithium, cobalt, and nickel.
- Chile has emerged as **India's largest critical mineral supplier (FY19–FY25)**, mainly due to **copper ore** and **lithium-linked imports**.
- **China's Dominance:** In global **graphite** production, **cobalt** processing, and battery supply chains, creating strategic vulnerabilities.

Fugitive Economic Offender (FEO)

The Enforcement Directorate (ED) has declared 21 people as fugitive economic offenders (FEOs) over the past seven years, according to its annual report.



About FEO:

- **Meaning:** FEO is an individual against whom an arrest warrant has been issued for committing scheduled economic offenses exceeding ₹100 crore, who has left India to avoid prosecution or refuses to return to face trial.
- It is defined under the **Fugitive Economic Offenders Act, 2018**.
- Some of the **offences listed in the act** are:
 - Counterfeiting government stamps or currency.
 - Cheque dishonour.
 - Money laundering.
 - Transactions defrauding creditors.

IMF Working Paper on MSMEs



It compared the productivity of MSMEs in states that have undertaken digitalisation reforms.

- States that implemented more of these reforms recorded **higher total factor productivity**.
 - **Total Factor Productivity** is a measure of an economy's ability to generate income from inputs- to do more with less.

Significance of MSMEs

- **Economic:** Contribute ~30% to India's GDP and account for ~35% of the country's manufacturing output.
- **Employment Generation:** responsible for ~60% of total employment in India.
- **Export Promotion:** account for ~45% of India's total exports (in 2023-24).
- **Rural Revitalization:** Agri-based and rural MSMEs strengthen village economies and curb distress-driven migration by creating local opportunities in agro-processing.
- **Women Empowerment:** Women-led MSMEs drive gender-inclusive growth and social mobility.

Government Initiatives for MSMEs:

- **PM Vishwakarma Scheme:** to enhance the quality and reach of products and services by artisans and craftspeople, integrating them into domestic and global value chains.
- **Prime Minister's Employment Generation Programme (PMEGP):** to provide employment opportunities through establishment of micro-enterprises in the non-farm sector.
- **Scheme of Fund for Regeneration of Traditional Industries (SFURTI):** to organize traditional artisans into collectives or clusters.
- **Public Procurement Policy for Micro and Small Enterprises:** mandates that 25% of annual procurement by Central Ministries and Central Public Sector Enterprises (CPSEs) must be sourced from MSEs.

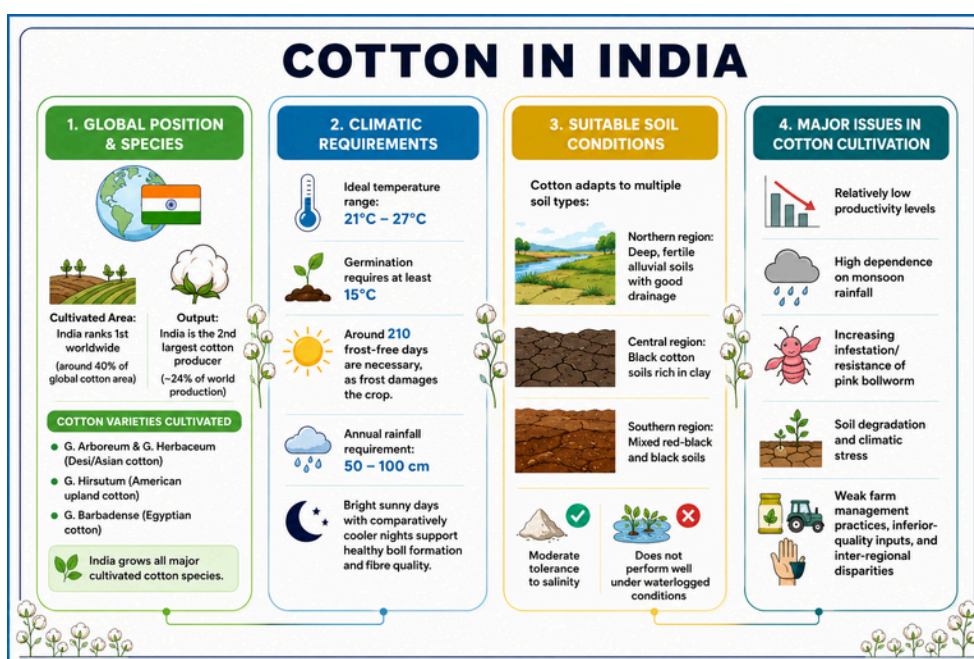
Mission on Cotton Productivity



Aligning with the government's "5F" vision (Farm to Fibre to Factory to Fashion to Foreign), the mission aims to make India's textile sector globally competitive and self-sufficient.

About the Mission

- **Aim:** Improve Cotton Productivity to address stagnation in yields, quality concerns, and supply bottlenecks etc.
- **Total Period:** 2026-27 to 2030-31 (₹5,659.22 crore outlay)
- **Joint Implementation:** Ministry of Agriculture and Farmers Welfare and Ministry of Textiles.
- **Targets:** To increase lint productivity from 440 kg/ha to 755 kg/ha and boost total production from 297 lakh bales to 498 lakh bales by 2030-31.
- **Coverage:** Initially 140 districts in 14 cotton-producing states
- **Key Features:**
 - **Technology Development:** Create high-yielding, climate-resilient, and pest-resistant seeds; advanced crop protection technologies.
 - **Modern Cultivation:** Upscale advanced practices like High-Density Planting (HDPS), Closer Spacing, and Extra Long Staple (ELS) cotton.
 - **Branding & Traceability:** Position Indian cotton as a premium, sustainable global product through the Kasturi Cotton Bharat initiative.
 - **Digital Empowerment:** Integrate local mandis digitally for transparent price discovery and direct market access.
 - **Fibre Diversification:** Expand India's textile base by integrating sustainable natural fibres (e.g., flax, bamboo, banana, sisal, ramie) to meet evolving global demands.
- **Others:** Promote cotton waste recycling and Circular Economy; Strengthen cotton testing infrastructure; modernization of ginning and processing factories.



EAC-PM Paper on Care Economy



April 2026

Virat Singh & Aditya Sinha

The paper calls for a paradigm shift, treating care as a foundational social and economic infrastructure rather than private household responsibility.

About Care Economy (Or Purple Economy)

- It encompasses activities (paid or unpaid) essential for the well-being of **children, the elderly, and persons with disabilities (PwDs)**.
- **GDP Contribution:** Unpaid domestic and care work (largely by women), is valued at **~15–17% of India's GDP**.

Recommendations by EAC-PM

- **Innovative Financing**
 - **Parivar Seva Kosh/Family Care Fund:** For community-driven care infrastructure and services.
 - **Carepreneur Fund:** For concessional finance for entrepreneurs in the sector.
 - **Leverage PPPs:** E.g. World Bank funded Tamil Nadu's Women Employment and Safety Programme to provide childcare for working women.
- **Care Workforce:** Skill Gap assessment, standardised training and certifications etc.
- **Policy Reforms**
 - **Gender-neutral childcare leaves:** Phased reforms from extending paternity leave to private sector to gender-balanced parental leave.
 - **Urban Planning Integration:** Recognising care facilities as **essential social infrastructure**.
 - **Strengthening Maternity benefits:** E.g. Sikkim's monthly financial assistance for mothers in private sector.
 - **Others:** Support formation of **Care Cooperatives**; **Co-location** of childcare within government schools; Quality Assurance Mechanisms etc.

Need for Development of a Formal Care Economy

- **Economic Opportunity:** Investing 2% of GDP can create 11 million jobs (majorly for women).
 - E.g. India needs 31-38 million formal care workers by 2050.
- **Gender Imbalance:** Women spend ~289 minutes daily on unpaid domestic work, against ~88 minutes by men limiting their access to education and employment (time poverty).
- **Demographic Transition and Ageing:** By 2050, elderly population will reach 21% from 10%, while children will form 18% (from 24%).
- **Weakening Traditional Support:** Due to urbanisation and nuclear families, requiring additional care infrastructure.
- **Informal Workforce:** Care workers like ASHA and Anganwadi workers, face high caseloads, limited social security, and honorariums instead of fixed wages.

Electronic Gold Receipts



National Stock Exchange of India launched EGRs, to formalise India's gold market.

- The **Bombay Stock Exchange** was the first exchange in India to launch EGRs in 2022.

About EGRs

- They are **dematerialised securities** that represent **ownership of physical gold**, which is stored in SEBI's accredited vaults and **held electronically** through depositories.
 - Each EGR is **fully backed by physical gold with assured quality and can be traded on exchange**, integrating gold into financial system.
 - They can be **redeemed anytime** in exchange of gold, unlike Gold ETF (cash settlement).
- **Regulated by:** Securities Exchange Board of India (SEBI)
- **Asset Class:** Securities under the Securities Contracts (Regulation) Act (SCRA), 1956
- **Market Participants:** Retail Investor, Jewellers, Bullion Traders, etc.

Fair and Remunerative Price (FRP)



Union Cabinet raises sugarcane FRP by ₹10 per quintal.

About FRP

- FRP is the minimum price declared by the Central Government at which sugar mills are legally bound to procure sugarcane from farmers.
- **Objective:** Ensures assured and remunerative prices to sugarcane farmers.
- **Legal Basis:** Introduced under the Sugarcane (Control) Order, 1966.
- **Institutional Mechanism:** Recommended by the **Commission for Agricultural Costs and Prices (CACP)** and approved by the **Cabinet Committee on Economic Affairs (CCEA)**.
- **Criteria:** FRP is fixed considering factors such as **production cost, sugar recovery rate, alternative crop returns, by-product value, consumer interest, etc.**

State Advised Price (SAP): Some States such as Uttar Pradesh, Punjab, Haryana and Uttarakhand announce SAP, which is generally higher than FRP.

Uniform Guideline for Compilation of Gross State Value Added (GSVA)



MoSPI has released the Uniform Guideline for Compilation of Gross State Value Added (GSVA) Estimates with Base Year 2022-23.

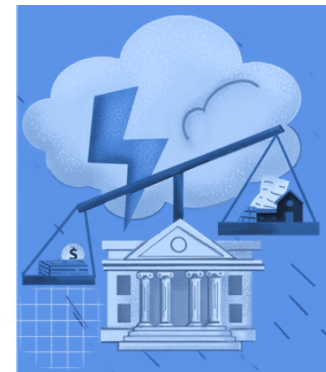
About the Guidelines

- **Aim:** To improve the compilation of GSVA and Gross State Domestic Product (GSDP) and ensure consistency and comparability of economic data across all States/UTs.
- **Key Priorities:** Expanding **data integration**, updating **methodology** to capture emerging and unincorporated sectors, and **standardizing methods** across all States/UTs.
- Aims to include previously excluded UTs like Lakshadweep and Dadra & Nagar Haveli and Daman & Diu for 100% national coverage.

Significance of GSDP Estimates

- Used for tracking state-level growth, industrial output etc.
- Used by the Finance Commission and Ministry of Finance to allocate resources and distribute Central taxes.

Capital to Risk Weighted Assets Ratio



RBI has revised the capital adequacy norms for commercial banks, small finance banks and payments banks.

- RBI has now allowed banks to include quarterly profits earned in Common Equity Tier 1 (CET1) capital for the computation of the CRAR.

About CRAR

- **Capital to Risk-Weighted Assets Ratio (CRAR):** Also known as the **Capital Adequacy Ratio (CAR)**, it is the primary metric used by the RBI to ensure a bank can absorb a reasonable amount of loss before it becomes insolvent.
- **Formula:** $CRAR = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weighted Assets}}$
 - **Tier I capital** is a **bank's highest quality capital** because it is fully available to cover losses.
 - E.g. CET1 Capital which includes **common shares, stock surpluses, and retained earnings.**
 - **Tier II capital** (certain reserves and subordinated debt) has a **lower loss absorption capacity** than Tier I capital.

Micro-irrigation under NMSA



Government targets additional 100 lakh hectares under micro-irrigation. This target will be achieved over a period of 5 years from 2025-26 to 2029-30 through the Per Drop More Crop (PDMC) initiative under the broader National Mission for Sustainable Agriculture (NMSA).

About NMSA

- **Launched:** in 2014-15 under the framework of the **National Action Plan on Climate Change (NAPCC)**.
 - Since 2022-23, it has been included under **Pradhan Mantri Rashtriya Krishi Vikas Yojana**.
- **Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Aim:** To enhance agricultural productivity while focusing on **integrated farming, water use efficiency, soil health management** and synergizing resource conservation.
- **Four Major Interventions/Components**
 - **On Farm Water Management (OFWM) / Per Drop More Crop (PDMC):** Promotes **precision irrigation (mainly drip & sprinkler systems)** to improve water-use efficiency.
 - **Coverage:** ~109 lakh hectares under micro-irrigation since 2015-16.
 - Since 2015-16, PDMC initiative has been **subsumed under the Pradhan Mantri Krishi Sinchayee Yojana** for its implementation as a Centrally Sponsored Scheme.
 - **Rainfed Area Development (RAD):** Uses "**watershed plus framework**" for natural resource conservation.
 - It promotes **Integrated Farming Systems (IFS)** that **combines multi-cropping with allied activities** (horticulture, livestock, fishery, agro-forestry) to boost income and reduce risk.
 - **Soil Health Management (SHM):** Focuses on **location- and crop-specific nutrient management**. It is delivered through **Soil Health Cards (SHC) Scheme** to promote balanced fertilization, residue management, organic farming, and reduced urea overuse.
 - **Climate Change and Sustainable Agriculture: Monitoring, Modeling and Networking (CCSAMMN):** Facilitates **two-way flow of climate information** between farmers and scientists for better climate adaptation through pilot projects.

MICRO IRRIGATION SYSTEM

An advanced irrigation practice in which water is supplied to crops through devices like drippers, sprinklers, and other emitters placed on or beneath the soil surface.

COMMON METHODS

 DRIP EMITTERS <p>Deliver water slowly and directly near plant roots.</p>	 SPRINKLER UNITS <p>Spread water evenly across the field.</p>	 RAIN GUN IRRIGATION <p>Uses high-pressure spray for irrigating larger farm areas.</p>
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ADVANTAGES

 ENHANCES WATER CONSERVATION <p>Minimizes water loss caused by evaporation, runoff, and deep seepage.</p>	 SAVES ENERGY <p>Requires lower energy consumption than many conventional irrigation techniques.</p>	 SUPPORTS PRECISE FERTIGATION <p>Enables accurate application of water and nutrients for healthier crop growth and improved yields.</p>	 HELPFUL IN WATER-DEFICIENT REGIONS <p>Maintains better agricultural productivity in drought-prone and low-water areas.</p>	 ENCOURAGES REUSE OF TREATED WATER <p>Makes efficient use of properly treated wastewater for farming purposes.</p>	 SUITABLE FOR HIGH WATER-DEMAND CROPS <p>Assists in cultivating fruits, vegetables, and similar crops more efficiently.</p>
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Save Water | Save Energy | Increase Productivity | Sustainable Future

VB-G RAM G Act, 2025



Viksit Bharat – Guarantee for Rozgar and Ajeevika Mission (Gramin) [VB-G RAM G] Act, 2025 The Act will come into force on 1 July, 2026 and the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005 will stand repealed.

- To ensure seamless transition, existing e-KYC verified MGNREGA Job Cards shall remain valid until Gramin Rozgar Guarantee Cards are issued.

Salient Features of the VB-G RAM G Act

- Viksit Bharat @2047 Alignment:** Shifts towards integrated rural development and durable asset creation.
- Thematic Public Works:** Prioritizes four areas- water security, core rural infrastructure, livelihood-related assets, and extreme weather mitigation.
- Tech-Enabled Governance:** Integrates face authentication for attendance, GIS, AI-enabled analytics, real-time dashboards, and Direct Benefit Transfer (DBT).
- Participatory Planning:** Execution relies on bottom-up Viksit Gram Panchayat Plans (VGPPs) seamlessly integrated into the Viksit Bharat-National Rural Infrastructure Stack (VB-NRIS).

Key Statutory Provisions

- Centrally Sponsored Scheme:** Shared responsibilities between Centre and States.
- Enhanced Guarantee:** Mandates a statutory 125 days of guaranteed unskilled wage employment per rural household annually.
- Prompt Payments & Penalties:** Wages must be paid weekly or within 15 days from closure of muster rolls; delays incur a daily compensation rate of 0.05% of unpaid wages.
- Unemployment Allowance:** If employment not provided within 15 days, mandates an allowance at one-fourth of the notified wage for the first 30 days, and one-half thereafter.
- Agricultural Balance:** Empowers States to notify up to a 60-day pause during peak sowing/harvesting seasons to secure farm labour.

Comparison of MGNREGA and VB-G RAM G Act		
Aspect	MGNREGA	VB-G RAM G Act
Job guarantee period	Assures 100 days of work	Provides up to 125 days of work
Main focus	Creating wage employment opportunities	Employment support, livelihood enhancement, durable asset building, and climate adaptation
Flexibility during farming season	No specific clause available	Work can be paused during intensive agricultural periods
Sharing of financial burden	Central Government pays unskilled labour wages; States handle unemployment compensation	Wage expenditure shared between Centre and States: <ul style="list-style-type: none"> 90:10 for North-Eastern & Himalayan regions 60:40 for other States/UTs with legislature Fully funded by Centre for UTs without legislature

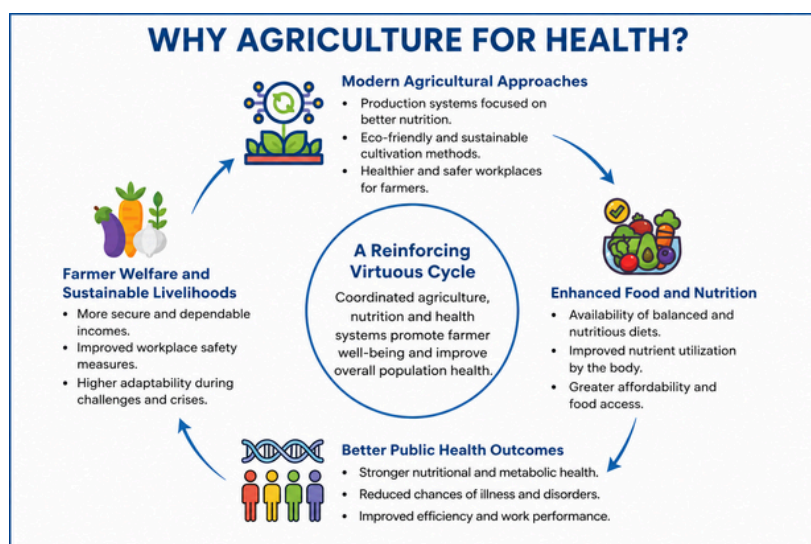
SEHAT Initiative Launched

SEHAT, an Initiative linking Agriculture and Health Launched SEHAT – Science Excellence for Health through Agricultural Transformation is a joint initiative of Indian Council of Medical Research (ICMR) and Indian Council of Agricultural Research (ICAR).



Key Highlights of SEHAT

- **Vision:** Transform agriculture from food production system into powerful driver of **nutrition, health, and well-being** for India.
- **Five Priority Areas of National Significance:**
 - **Development and evaluation of biofortified and nutrient-dense crop varieties:** Address malnutrition and improve nutritional status.
 - **Biofortification** increases nutrient density of food crops through **conventional plant breeding, and/or improved agronomic practices and/or modern biotechnology** without sacrificing key characteristics.
 - E.g., enriching with zinc, iron and other nutrients.
 - **Strengthening Integrated Farming Systems:** Promote dietary diversification, enhance farm incomes, and build resilience.
 - **Addressing Occupational Health Risks:** Among agricultural workers through targeted, evidence-based interventions.
 - **Prevention and management of non-communicable diseases:** Advancing agriculture-enabled strategies through **promotion of functional foods and nutritionally superior crop varieties.**
 - **One Health preparedness:** Integrated surveillance, diagnostics, and research at **human–animal–environment interface.**
- **Significance**
 - **Proactive, Preventive, and Holistic approach to Healthcare** as against reactive and curative model.
 - **Address Dual burden of undernutrition and overnutrition rising non-communicable diseases** like diabetes, hypertension and cancer, etc.
 - **“Whole of government” and “Whole of systems”** approach integrating science, policy making and implementation.



National Jute Board (NJB)



NJB stepped up implementation of Jute Crop Information System (JCIS).

- JCIS was launched in 2023 in collaboration with **Indian Space Research Organisation** and **Jute Corporation of India** to monitor jute cultivation using remote sensing and field data.
- Has two key tools: **BHUVAN JUMP**, mobile app for on-field jute monitoring, and **PATSAN (Prospective Assessment of Jute Using Mobile App-Based Field Observations)**.

National Jute Board (Hq: Kolkata, West Bengal)

- Governed by **National Jute Board Act, 2008**.
- **Ministry:** Ministry of Textiles
- **Function:** research and human resource development to explore new and innovative use of jute; increase global share of Indian jute goods consumption.

India's Shipbuilding Sector

MoU signed for developing India's First Mega Greenfield Shipyard at Thoothukudi, Tamil Nadu under India- Republic of Korea Comprehensive Framework 'VOYAGES'.



- Proposed shipyard will have 2.5 Million GT annual capacity and generate 15,000 direct jobs.

About 'VOYAGES' (Shared Vision for Operation of Yard Assisted Growth with Efficiency and Scale)

- Signed in April, 2026, it promotes **India-South Korea cooperation in shipbuilding, shipping and maritime logistics** via **technology transfer, green shipbuilding and training of Indian professionals** in South Korea.

Overview of India's Shipbuilding Sector

- **Global Standing:** India holds **less than 1% of global share**, far behind China (47%), South Korea (25%) and Japan (18%).
- **Aging Fleet:** **Average Indian fleet age is 21 years**, creating demand for nearly 2,500 new vessels.
- **Market Growth:** Sector projected to grow from **US\$90 million (2022) to US\$8.12 billion by 2033**.

Import duty on gold and silver

The government further imposed a 100 kg cap on gold imports under the Advance Authorization (AA) scheme, which allows jewellery exporters to import raw materials duty-free.



- The Advance Authorisation Scheme is a trade facilitation measure by the Directorate General of Foreign Trade (DGFT) that allows duty-free import of raw materials to manufacture export products.
- These measures were taken following Prime Minister's appeal to avoid buying gold for a year to ease pressure on Indian foreign exchange reserves.

Impact of rising gold demand on Indian Economy

- **Trade Deficit:** India's merchandise trade deficit reached \$333.2 billion in FY26, a significant rise from \$284.5 billion the previous year.
 - India's gold imports in FY26 totaled \$71.98 billion, marking a 24.08% increase year-on-year.
- **Increased Current account deficit (CAD):** Due to rising trade deficit in its April 2026 projections, the IMF said India's current account deficit could widen in 2026 roughly around 2% of GDP.
 - Current account deficit refers to the situation where a country's total imports of goods, services, and transfers exceed its total exports and transfers out.
- **Depreciates Indian Rupee:** As a result imports become costlier and it force RBI to use foreign exchange reserves to stabilize the currency.
- **Dead Capital:** As gold stored privately remains outside the formal financial system and cannot support investment, infrastructure, or job creation.

Gold Consumption status

- **India**
 - India is the world's **2nd largest consumer of gold**, just after China.
 - Approximately 90% of India's gold is imported, making domestic prices highly sensitive to international trends.
 - **Gold Ore:** The largest resources in terms of gold ore (primary) are located in Bihar (43%), followed by Rajasthan (24.92%), and Karnataka (20%).
 - Karnataka is the leading producer of gold accounting for 97% followed by Andhra Pradesh and Jharkhand.
- **World**
 - **Major Holders of Gold Reserves:** United States, followed by Germany and Italy.
 - **Major Exporters:** Switzerland, followed by the United Arab Emirates and United Kingdom (World Population Review).

Minimum Support Price

Government approved an increase in MSP for 14 Kharif Crops for Marketing Season 2026-27.



About MSP

- **Definition:** Mechanism through which government supports farmers by purchasing their crops at a pre-determined price.
- **Recommendation:** The Commission for Agricultural Costs & Prices (CACP), Ministry of Agriculture
- **Final approval:** Cabinet Committee on Economic Affairs, chaired by PM.
- **Legal Status:** MSP does not have any statutory (legal) backing.
- **Crops Covered:** 22 crops. In addition, MSP for Toria and De-Husked coconut is also fixed on the basis of MSPs of Rapeseed & Mustard and Copra.
 - **14 Kharif Crops** (e.g., Paddy, Jowar, Bajra, Maize, Ragi, Arhar, Moong, Urad, Groundnut, Soybean, Sunflower, Sesamum, Nigerseed, Cotton).
 - **6 Rabi Crops** (e.g., Wheat, Barley, Gram, Masur/Lentil, Rapeseed/Mustard, Safflower).
 - **2 Commercial Crops** (Raw Jute, Copra).

Wholesale Price Index (WPI)

Wholesale inflation jumps to 3.5-year high of 8.3% in April 2026 due to war in West Asia.



About WPI:

- **Meaning:** It is a measure of the average change of prices of a fixed set of goods at the first point of bulk sale in a commercial transaction in the domestic market over a given period of time.
- **Released by:** Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Union Ministry of Commerce & Industry.
- **Base Year:** 2022-23
- **Composition of Basket:** Categorized into three major groups:
 - **Primary Articles** (Weight 22.62%): Consists of 4 sub-groups: Food Articles; Non-Food Articles; Minerals; and Crude petroleum and natural gas
 - **Fuel & Power** (Weight 13.15%): Consists of 3 sub-groups: Coal; Mineral Oils; Electricity.
 - **Manufactured Products** (Weight 64.23%): Consists of 22 sub-groups.

Living Wages

In context of worker protests in Noida, Supreme Court highlighted State's obligation to provide a "living wage" to workers, in accordance with the Constitution's Directive Principles of State Policy (DPSP).



- **Article 43 (DPSP)** mandates that the State shall endeavor to secure a "living wage" and a decent standard of life for all workers.

About Living Wages

- A living wage, or living income, is the remuneration received for a standard workweek that is **sufficient to afford a decent standard of living for a worker and their family.**
- Often, the living wage is **higher than the minimum wage.**
 - Minimum wages are the **lowest legally mandated** remuneration that employers must pay their workers.

Key Manufacturing Facilities launched in Rajasthan

Union Minister inaugurated new Manufacturing facilities in Rajasthan.



About the Facilities

- India's first **Small and Medium Enterprise (SME)-led Semiconductor facility at Bhiwadi, Rajasthan.**
 - **ATMP** (Assembly, Testing, Marking, and Packaging) and **OSAT** (Outsourced Semiconductor Assembly and Testing) facility.
 - Developed under **MeitY's Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)**
 - SPECS scheme provides 25% financial incentive on capital expenditure for targeted electronic goods.
 - The sunset date for applications under SPECS was 31 March 2024.
- **ELCINA Electronics Manufacturing Cluster (EMC)** at Salarpur.
 - **EMC Scheme** provides financial assistance for building infrastructure to attract global investments and boost domestic electronics manufacturing.





Based Economy



Proposed framework for measuring India's knowledge-based economy's contribution to GDP Released by the Ministry of Statistics and Programme Implementation, it seeks to measure the contribution through knowledge in capital, labour, innovation, and digital sectors.

About Knowledge-based Economy

- **Definition:** It is a system of consumption and production that emphasizes the use of human capital like information, skills, technical expertise, and intellectual property over physical inputs and natural resources.
- **Types of Knowledge:**
 - **Codified Knowledge:** Information that can be easily documented and transmitted digitally (e.g., *know-what* and *know-why*).
 - **Tacit Knowledge:** Experience-based skills and capabilities that are harder to codify and transfer (e.g., *know-how* and *know-who*).
- **Significance of a Knowledge-Based Economy**
 - **Driven by Increasing Returns:** Generate increasing returns through innovation spillovers, repeated use, and sustained long-term economic growth.
 - **Transformation of Value Creation:** Commercializes science and innovation through IPRs like patents and copyrights, with knowledge-based activities contributing over 50% of GDP in major OECD economies.
 - **High-Skill Employment:** Creates high-wage jobs and increases demand for skilled “knowledge workers”.
 - **National Innovation Systems:** Relies on dynamic networks linking academia, government, and industry for interactive learning and innovation diffusion.
- **Examples:** Digital India by MeitY, Traditional Knowledge Digital Library, Ayush, GI Tags, etc.

ACCORDING TO WORLD BANK, A KNOWLEDGE ECONOMY RELIES ON FOUR PILLARS	
PILLAR	DESCRIPTION
 INSTITUTIONAL STRUCTURES INCENTIVIZING ENTREPRENEURSHIP	Policies, regulations, and governance frameworks that encourage business creation, innovation, and investment.
 AVAILABILITY OF SKILLED LABOR AND EDUCATION	A skilled and educated workforce equipped with the knowledge and abilities needed for productivity and innovation.
 STRONG INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) INFRASTRUCTURE	Reliable and modern ICT infrastructure that enables efficient access, exchange, and use of information and knowledge.
 A VIBRANT INNOVATION LANDSCAPE BRIDGING ACADEMIA, PRIVATE SECTOR, AND CIVIL SOCIETY	Strong collaboration among universities, businesses, government, and civil society to foster innovation, research, and technological advancement.

Jaggery

India accounts for over 70 percent of global jaggery production. This makes it the world's largest jaggery producer.



About Jaggery

- Recognized as a **superfood**, a **natural, nutrient-rich alternative** to refined sugar.
 - Jaggery is **produced from concentrated sugarcane juice** without chemical refining. It therefore retains essential minerals and micronutrients.
- **Minerals:** Like calcium, magnesium, potassium, phosphorus, sodium, iron, zinc, copper, and manganese.
- **Benefits:** Sustains Energy, Aids in Treating Anaemia, Strengthens Immunity, Treats Throat and Lung Infections, Supports Digestion etc.
- **Production:** Uttar Pradesh contributed 48.5 percent of total production, followed by Maharashtra (24.1 percent) and Karnataka (10.5 percent).

Countercyclical capital buffer

Reserve Bank of India decided not to activate the Countercyclical Capital Buffer.



About Countercyclical Capital Buffer (CCyB)

- **Genesis:** The framework was introduced globally after the 2008 financial crisis under the Basel framework.
- This **Basel III macro-prudential tool requiring banks to hold additional capital** during periods of excessive credit growth.
- **Need:** Helps **absorb losses during financial stress** and strengthens banking sector resilience.
- **Provisioning:** Under Basel III, CCyB ranges from **0–2.5% of Risk-Weighted Assets (RWA)**.

Key Takeaways on Santa Marta Conference

Key Takeaways from First Conference On Transitioning Away From Fossil Fuels, co-hosted by Colombia and the Netherlands in Santa Marta, Columbia.



Key Takeaways

- **Institutional continuity:** Countries agreed to convene **second conference** in **2027**, co-hosted by **Tuvalu and Ireland**.
- **New coordination architecture:** Bring together stakeholders working on different aspects of transition, while linking 30th Conference of Parties to UNFCCC or COP30 processes.
- **Workstreams Launched:** Three tracks on **transition roadmaps, finance reforms, and producer–consumer coordination**.
- **Integration with global climate processes:** Conference outcomes to feed into **COP30 Presidency roadmap**, contribute to **second Global Stocktake** under Paris Agreement.
- **Science Panel for the Global Energy Transition: Launched** to guide countries with **evidence-based pathways** aligned with **1.5°C target**.

Tanzania

Recently, 5th India–Tanzania Joint Trade Committee Meeting was held to strengthen bilateral economic cooperation.

Tanzania (Capital: Dodoma)

Political features

- **Location:** Largest East African country situated just south of Equator.
- **Bordering Countries:** Kenya and Uganda to North; Burundi, Democratic Republic of Congo and Rwanda to the West; Zambia, Malawi and Mozambique to the South.
- **Bordering water bodies:** Lake Victoria in North; Indian Ocean in the East; Lake Tanganyika in West; and Lake Nyasa in Southwest.

Geographical features

- **Major lakes:** Lake Tanganyika (World's second deepest lake).
- **Highest Peak:** Mountain Kilimanjaro (Dormant volcano and highest mountain in Africa).
- **Major Rivers:** Ruvuma, Rufiji etc.
- **Islands:** Zanzibar, Pemba and Mafia.



ILO Article 24

Tea plantation workers in West Bengal invoked Article 24 of the International Labour Organisation (ILO) Constitution, alleging labour rights violations and poor working conditions in tea gardens.



- **Article 24** allows workers' or employers' organisations to file a representation against a member state for non-compliance with ratified labour conventions.

About International Labour Organisation (ILO)

- **Established:** 1919 under the Treaty of Versailles
- **Objective:** Promote labour rights, decent work and social justice
- **Headquarters:** Geneva, Switzerland
- **Members:** 187 member states (**India** is a founding member)
- **Other key information:**
 - **Tripartite structure** involving governments, employers and workers.
 - **First specialised agency** of the United Nations (1946)
 - **Awarded the Nobel Peace Prize (1969)** for promoting social justice and workers' rights.

Asian Development Bank

ADB launches \$70 billion plan for energy, digital infrastructure in Asia-Pacific



- It includes the **Pan Asia Power Grid Initiative** and the **Asia-Pacific Digital Highway**, connecting economies through energy and technology.

About Asian Development Bank (ADB)

- **Overview:** It is a **multilateral development bank** that supports sustainable, inclusive, and resilient growth across the Asia-Pacific.
- **Present Members:** From 31 members at its establishment in 1966 to **69 members**, of which 50 are from within Asia and the Pacific and 19 outside.
- **Key Shareholders:** Japan and the USA (each with 15.6% of total shares), China, India, and Australia. (As of 31 December 2024)
- **HQ:** Manila, Philippines.

World Migration Report 2026

International Organisation for Migration released the World Migration Report 2026.



Key Highlights

- **Global Migration:** ~304 million people were living outside their country of birth in 2024, accounting for 3.7% of the global population, up from 2.9% in 1990.
- **Top Corridors:** Mexico-US (1st), Afghanistan-Iran (2nd), Syria-Turkiye (3rd), Russia-Ukraine (4th), India-UAE (5th) and India-US (6th).
- **Migration driving development:** Remittances reached an estimated \$905 billion globally in 2024, including \$685 billion to low- and middle-income countries
- **India related:**
 - Indian migrants in UAE were over 3 million while Indians in US were around 3.2 million (second-largest after Mexicans).
 - India had a higher share of female immigrants than male immigrants.
 - Male Emigration from India: Largely due to labour migration to Gulf etc.

Algeria

India-Algeria Joint Commission agrees to further expand defence cooperation during the first meeting.

Political Features

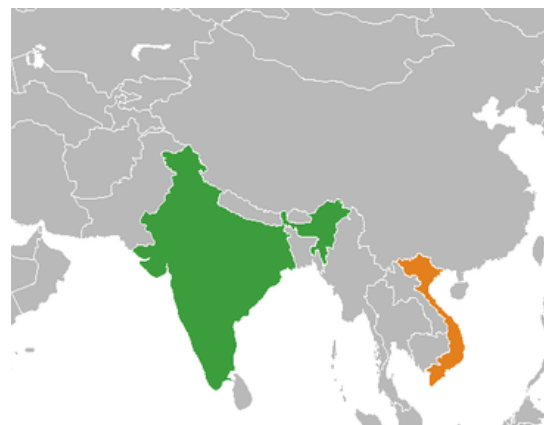
- Located in the **Maghreb region** of North Africa.
 - Maghreb region comprises Atlas Mountains and coastal plain of Morocco, Algeria, Tunisia, and Libya.
- **Land Boundary:** Tunisia (Northeast), Libya (East), Niger & Mali (South), Mauritania & Western Sahara (Southwest), Morocco (West).
- **Maritime Boundary:** Mediterranean Sea (North)

Geographical Features

- Landscape is dominated by high plateaus and the Sahara Desert, with the **Atlas Mountains** in the north and the **Ahaggar Massif** in the southeast.
- **M'zab Valley:** 5 fortified oases towns is a UNESCO World Heritage site.
- **Climate:** Mediterranean in north to desert type in south.



India and Vietnam upgraded bilateral



The “Enhanced Comprehensive Strategic Partnership” marks an elevation of the Comprehensive Strategic Partnership established between India and Vietnam in 2016.

- This decision was taken during the visit of the President of Vietnam to India.

Key Highlights / Outcomes of Visit

- **Trade & Economic Cooperation:** Bilateral trade target set at **\$25 billion by 2030** (currently around \$16 billion).
 - Both sides pushed for Early review and conclusion of ASEAN-India Trade in Goods Agreement (AITIGA).
- **13 strategic MoUs Signed:** Across critical minerals cooperation, Digital Connectivity & FinTech, healthcare, digitisation of ancient Cham manuscripts, etc.
- **Defence & Security Cooperation:** Both countries will establish **Strategic Diplomacy–Defence Dialogue (2+2)**.
- **Maritime Integration:** Vietnam joined **Indo-Pacific Oceans Initiative (IPOI)**.
 - IPOI is a voluntary, non-treaty initiative launched by India at East Asia Summit 2019 in Thailand to promote a free, open, and rules-based Indo-Pacific region.

Significance of Vietnam for India

- **Act East Policy:** Vietnam is a core partner of India in ASEAN and a critical partner in India's Act East policy, Vision MAHASAGAR and the Indo-Pacific vision.
- **Geostrategic location:** Vietnam's position in the Indo-Pacific is crucial for maintaining secure and stable trade routes.
- **Countering China:** Both support **freedom of navigation and a rules-based order** in the South China Sea in accordance with the 1982 UNCLOS.
- **Supply Chain Diversification:** Vietnam's cooperation in imports and rare earths supports India's manufacturing ecosystem, helps reduce global dependence on Chinese supply chains.
- **Energy security:** Indian companies have invested in oil and gas exploration projects in Vietnamese waters in South China Sea which are extremely rich in hydrocarbon reserves.

India-EU Trade & Technology Council

India and EU launched €15.2 million (~₹169 crore) joint initiative to strengthen EV battery recycling under the India-EU Trade and Technology Council (TTC)-working group-2.



- The initiative will be funded through the EU's **Horizon Europe** programme and India's **Ministry of Heavy Industries**.

About India-EU Trade and Technology Council (TTC)

- **Launch:** February 2023.
- **Objective:** It aims to push both regions toward **strategic autonomy** by actively **reducing the EU's dependence on China** and **India's reliance on Russia**.
- **Three Core Working Groups (WGs):**
 - **WG 1:** Strategic Technologies, Digital Governance and Connectivity.
 - **WG 2:** Green and Clean Energy Technologies.
 - **WG 3:** Resilient Value Chains, Trade and Investment.

European Free Trade Association

Indian Commerce Secretary is on visit to Switzerland to advance the implementation of the India-EFTA Trade and Economic Partnership Agreement (TEPA).



About European Free Trade Association (EFTA)

- EFTA is an **intergovernmental organisation established in 1960** through the **Stockholm Convention**.
- **Objective:** Promotion of free trade and economic integration between its members.
- **Members:** Iceland, Liechtenstein, Norway and Switzerland.
 - **Initial Founding members:** Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom.
- **India is the EFTA's fifth-largest trading partner** after the European Union, the United States, Britain and China.
- Among EFTA, **Switzerland is the largest trading partner of India**, followed by Norway.

Caspian Sea

The Caspian Sea has emerged as a backdoor for military and commercial logistics between Russia and Iran amidst the ongoing West Asian conflict.



About Caspian Sea

- It is the world's **largest inland water body (or largest lake)**, located at the intersection of **Eastern Europe** and **Western Asia**.
- **Borders five countries:** Russia (northwest), Kazakhstan (northeast), Turkmenistan (southeast), Iran (south), and Azerbaijan (West).
- **Inflow & Outflow:** The **Volga River** is its primary source, providing approximately **80%** of its water inflow.
 - Since there is no outlet, **water is lost only through evaporation**, which results in its **brackish (salty) nature**.
- **Current Status:** Rich in oil and natural gas, the Caspian Sea has **shrunk by 46% between 2001 and 2024**, largely due to high evaporation rate and construction of dams on Volga River.

Chabahar Port

Iran's Foreign Minister highlighted Chabahar Port as a key India-Iran cooperation symbol, calling it a golden gate to Central Asia.



- In **2018**, an Indian company, **India Ports Global Limited (IPGL)** took over the operations of Chabahar Port.
- In **2024**, a 10-year contract was signed for operating the Shahid Beheshti Terminal of Chabahar Port.

About Chabahar Port

- **Location:** Sistan and Baluchestan province on the **Makran coast in South-eastern Iran**, on the Gulf of Oman.
- **Two terminals:** Shahid Kalantari and Shahid Beheshti.
- It is the **only Iranian port** with the direct access to the **Indian Ocean**.
- It is a key component of the **International North-South Transport Corridor (INSTC)**, enhancing trade between India, Central Asia, and Russia.

Non-tariff barriers surpasses tariff barriers



UN Trade and Development (UNCTAD) in its 'Invisible Barriers: The Costs of Non-Tariff Measures' Report highlights that global trade is increasingly being shaped by regulatory restrictions, technical standards and geopolitical trade interventions.

- **Dominance of Non-Tariff Measures (NTMs):** NTMs now impose **higher export costs** than tariffs for **88% of countries**.
- **Double Burden on Developing Nations:** of both rising tariffs and heavy NTM compliance costs.
- **Modern trade negotiations:** have shifted away from simply lowering tariffs to **focusing heavily on regulatory easing**. E.g. EU-India Trade Deal.
- **LDCs lose approximately 10% of their exports to G20 markets** as they often lack the **financial resources** and **accredited testing facilities** to navigate complex regulations.

Recommendations of UNCTAD

- **Enhance Transparency:** It can **reduce trade costs** associated with non-tariff barriers by about **19 %**.
- **Fostering Regulatory Cooperation and Alignment:** Aligning domestic regulations with **international standards** can reduce NTM related trade costs by **15-30%** without compromising safety.
- **Boosting South-South Trade Integration:** Leveraging **transparency and regulatory cooperation** can strengthen trade among developing countries.
- **Others:** Capacity-Building and Technical Support, Empowering LDCs in Trade Diplomacy etc.
- **Examples:** Codex Alimentarius, International Plant Protection Convention (IPPC), World Organisation for Animal Health (WOAH) etc.

TARIFF BARRIERS VS NON-TARIFF BARRIERS		
BASIS	TARIFF BARRIERS	NON-TARIFF BARRIERS
Meaning	Charges or taxes levied by the government on imported goods to safeguard domestic industries and earn revenue.	Restrictions other than taxes imposed on imports to support domestic producers and regulate foreign goods.
Nature	Direct and clearly defined measures.	Indirect and regulatory measures.
Form	Applied as customs duties and taxes.	Applied through rules, standards, quotas, licensing, and procedural requirements.
Government Revenue	Provide income to the government.	Usually do not contribute directly to government revenue.
Impact on Imports	Primarily increase the cost of imported products.	Can influence the quantity, availability, or price of imports.
Examples	Customs duty, import duty, export duty, ad valorem tax.	Import quotas, import permits, quality standards, foreign exchange controls.

About UN Trade and Development (UNCTAD)

- **HQ:** Geneva, Switzerland.
- **Genesis:** Established as a permanent **intergovernmental body** by the **United Nations General Assembly** in 1964.
 - It is a part of the **UN Secretariat** and **United Nations Development Group**.
- **Objective:** To aid **developing countries**, particularly the **least developed ones**, and transitioning economies, in **integrating effectively into the global economy**.
- **Members:** **195 nations (including India)**
- **Key Reports:** Trade & Development report, World Investment report, Least Developed Countries report etc.

India's Strategic Autonomy

Strategic autonomy refers to nation's ability to make sovereign decisions in foreign policy and defence without being constrained by external pressures or alliance obligations.



- It is **not synonymous with isolationism or neutrality** rather implies **flexibility, independence and capacity to engage with multiple powers** on one's own terms.

India's Strategic Autonomy Challenges

- **Fragmented World Order:** American dominance, China's assertiveness, and Russia's revisionism.
- **Western Pressures:** Navigating **sanctions and diplomatic opposition** (by USA) regarding India's strategic energy and defence ties with Russia.
- **China Challenge:** India's **deepening of strategic partnership with United States** being viewed in opposition to China.
- **Others:** **Weakened international institutions, use of force replacing rule of law** in recent military conflicts, **technological, digital and financial fragmentation**, shift towards **protectionism**, etc.

India's Measures to Maintain Strategic Autonomy

- **Recalibrating Relationships with Major Powers:** Deepening relations with United States while balancing strained economic ties due to **tariffs and sanctions**.
- **Balancing Act with China:** Despite border and diplomatic tensions, India participates in **multilateral forums** like BRICS, and Shanghai Cooperation Organisation, where China plays a leading role.
- **Firmness in Relations with Russia:** Despite Russia's growing closeness with China and global isolation following Ukraine conflict, India maintains defence and diplomatic ties.
- **Defence Diversification:** **BrahMos missiles**, jointly developed with Russia, French made **Mirage 2000 fighter jets**, along with Israeli-made weapons like SCALP-2000 bombs.
- **Trade Diversification:** India is pursuing **Free Trade Agreements (FTAs) and Comprehensive Economic Partnership Agreements (CEPAs)** aligning them with geopolitical realities.

Further, measures like Digital sovereignty, energy security, resilient supply chain, inclusive growth with vision of **self-reliance (Atmanirbharta)** would ensure continued pursuit of strategic autonomy for India.

World Health Statistics



World Health Statistics Report 2026 Released by WHO It is annual compilation of health and health-related indicators, been published by World Health Organization (WHO) since 2005.

Key Highlights

- **Global progress towards health and health-related SDGs:** Remains uneven and too slow to meet 2030 targets.
- **Infectious Diseases:** Global long-term declines for infectious diseases between 2010 and 2024 for HIV infections, tuberculosis, neglected tropical diseases, etc.
 - However **global malaria incidence rose 8.5%** since 2015.
- **High prevalence rates of preventable risk factors:** Rising **Global anaemia prevalence** in women of reproductive age and **Violence against women**.
- **Air pollution:** Estimated 2.0 billion people worldwide still rely on polluting cooking fuels and technologies in 2024.
- **Progress towards Universal Health Coverage:** About a **quarter of global population** faces financial hardship due to **out-of-pocket health spending**.
 - **1.6 billion people** are living in/have been pushed into poverty because of health expenses as of 2022.
- **Global life expectancy and HALE (Healthy Life Expectancy):** COVID-19 pandemic erased nearly decade of progress with **both falling to 2011 levels in 2021**.

Measures to Strengthen Mortality Surveillance for Effective Policy Actions

- **Sustained investment in robust CRVS (civil registration and vital statistics) systems:** Improved medical certification of cause of death.
- **Investments in digital health infrastructure:** Like interoperable platforms, secure data architecture and scalable digital tools, ensuring national data sovereignty.
- **Adhering to Global Binding Standards:** **WHO Nomenclature Regulations 1967**, integrating **International Classification of Diseases, ICD-11** into national systems.
- **Best Practices:** E.g., **Morocco** transitioned from **centralized to decentralized digital** cause-of-death reporting platform.

India-UAE Relations



India- United Arab Emirates (UAE) signed Framework for the Strategic Defence Partnership During the visit of the Indian Prime Minister, both countries signed the Framework for the Strategic Defence Partnership

- **Framework** will promote **Defence Industrial collaboration**, innovation and advanced technology, training, exercises, education and doctrine, special operations and interoperability, etc.

Other Key Highlights

- **Promotion of Strategic Petroleum Reserves:** Signed MoU to enhance energy security via crude storage in India's **Strategic Petroleum Reserves** (Vishakhapatnam/Chandikol).
- **Ship Repair Cluster at Vadinar, Gujarat:** MoU between Cochin Shipyard Limited (CSL) and Drydocks World (DDW) to establish a repair and offshore fabrication cluster.
- **MAITRI:** Both countries welcomed the operationalization of Virtual Trade Corridor using **MAITRI** (Master Application for International Trade and Regulatory Interface interface).

Significance of India-UAE Relations

- **Trade & Investment:** Bilateral trade hit \$101.25 billion (FY25-26), targeting \$200 billion by 2032.
 - The UAE is India's 7th largest investor, with economic ties streamlined by the 2022 Comprehensive Economic Partnership Agreement (CEPA), the 2024 Bilateral Investment Treaty, and the INR-AED settlement system.
- **Energy:** The UAE is India's 4th largest crude and largest LPG supplier, and the sole foreign participant in India's **Strategic Petroleum Reserve program**.
- **Strategic and Security Cooperation:** E.g., **I2U2 (India-Israel-UAE-USA)** and **UFI (UAE-France-India) Trilateral**
- **People-to-People:** The 3.5 million Indian diaspora forms the largest expatriate group in the UAE, driving strong remittance inflows.

Growing vulnerability of Undersea Cables

Recent proposal by Iranian state media to impose charges on undersea cable operators in the Strait of Hormuz highlights the growing vulnerability of global undersea cables.

Undersea Cables

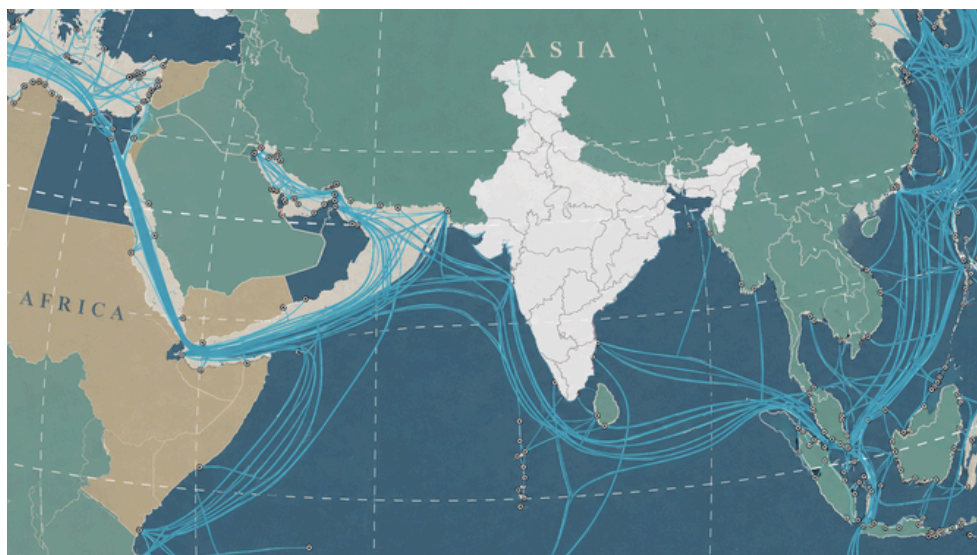
- Undersea, or submarine, cables are **fibre optic** lines laid on the ocean floor to carry global data and serve as the backbone of modern digital connectivity.
- These "**invisible highways**" transmit between 95% and 99% of all international data traffic.
- **United Nations General Assembly (UNGA)** in 2010 had described Submarine cable as "**critical communication infrastructure**".
- **Subsea cables** carry a much larger bandwidth and are more efficient, cost-effective, and reliable than satellites.
- Narrow maritime corridors such as the **Red Sea**, Strait of Hormuz, where multiple undersea cables converge, are often referred to as "**digital chokepoints.**"

Threats to the Undersea Cables Network

- **State-sponsored Intervention:** The IRGC proposed licensing fees and annual "protection" payments from tech giants (Meta, Amazon, Microsoft).
- **Gray-zone warfare:** Increasingly weaponised in hybrid conflict.
- **Espionage & Cyber Threats:** State-sponsored wiretapping for intelligence gathering and attacks on network management systems.

Implications for India

- **Financial Sector:** E.g., Stock trading and banking systems relying on fast connectivity could face paralysis within minutes.
- **IT and Outsourcing Sector:** E.g., India's IT-BPM industry relies on uninterrupted global connectivity for providing services to international clients.
- **Strategic and National Security Risks:** E.g., Military communications and intelligence sharing



Bharat Maritime Insurance Pool



The 'Bharat Maritime Insurance Pool' (BMI Pool) aims to facilitate continuous maritime insurance coverage and insulating India's maritime trade from global volatility.

What is the BMI Pool?

- It is a **government-backed maritime insurance pool** with a capacity of \$1.5 billion and sovereign guarantee of ₹12,980 crore (\$1.4 billion).
- **Ministry:** Department of Financial Services, Ministry of Finance
- **Coverage:** Major maritime risks, including Hull and Machinery, Cargo, Protection and Indemnity (P&I) and War risks for-
 - Indian flagged or controlled vessels.
 - Vessels destined to or starting from India.
- **Governance:**
 - **Pool Administrator:** General Insurance Corporation of India (GIC Re)
 - A **Governing Body** and an **Underwriting Committee** to oversee the pool's functions and risk management respectively.
- **How BMI Pool Operates:**
 - Domestic insurers issue policies using the combined capacity of the pool members.
 - Combined underwriting capacity of the Pool is ~Rs.950 crore.
 - **Claims Handling:** Up to \$100 million (by the Pool own capacity); Exceeding \$100 million (triggers sovereign guarantee as a contingent safety net of last resort)

Need for the BMI Pool

- **Addressing Geopolitical Volatility:** Rising global volatility and Middle East tensions have drastically increased maritime risks.
 - E.g., disruptions in Red Sea, Strait of Hormuz etc. have **increased insurance premiums**
- **Mitigating Impact of Sanctions:** Sanctions can abruptly cut off foreign re/insurance support, disrupting shipping operations and critical trade flows.
- **Others: Develop Domestic Expertise** in underwriting and claims management, **Reduces foreign exchange outflow** by reducing dependence on foreign insurers, enhances India's **maritime self-reliance, financial sovereignty and trade security.**

Indian Shipping Industry

- **Trade:** Nearly 95% of India's trade by volume and about 70% by value moves through maritime routes.
- **Cargo Handling:** In FY 2024–25, major ports handled ~855 million tonnes of cargo.
- **Domestic Fleet Strength:** 1,549 (only 1.2% of the global shipping fleet)
 - India contributes less than 1% to global commercial shipbuilding.
- **Workforce:** 12% of the global seafaring workforce (Among the top three global suppliers)

Indus Waters Treaty

India has never recognised the establishment of CoA and India has kept the Indus Water Treaty in abeyance.



- CoA is a five-member arbitral panel **constituted in 2023 at the Pakistan's request** after it challenged the design of India's Kishenganga and Ratle hydroelectric projects.
- **India, however, has refused to participate**, arguing that the dispute fall within the remit of Neutral Expert appointed by the World Bank.

About IWT

- **Origin:** Signed in 1960 between India and Pakistan with World Bank (signatory) as facilitator to determine distribution of the waters of the Indus and its tributaries.
- **Extent of Treaty:** The Treaty extends to main rivers of Indus basin i.e. Sutlej, Beas, Ravi (Eastern rivers) and Jhelum, Chenab and Indus (Western rivers).
 - All the waters of the Eastern Rivers were allocated to India for her unrestricted use while India is under obligation to let flow all the waters of the Western Rivers, except for the domestic, non-consumptive and other uses permitted in the Treaty.
- **Dispute Resolution under IWT:**
 - **Step 1: Permanent Indus Commission (PIC)** with a commissioner from each country. (Meets annually alternatively in both countries)
 - **Step 2: Neutral Expert** appointed by World Bank and involves rendering a binding decision.
 - **Step 3: Court of Arbitration** upon agreement between parties or at the request of either party.

Persian Gulf Strait Authority

Iran has announced the establishment of a new regulatory body (PGSA) to oversee and manage operations in the strategically significant Strait of Hormuz.



About Persian Gulf Strait Authority (PGSA)

- It is responsible for **monitoring developments and coordinating operations** related to the vital shipping corridor.
- Under the new system, vessels will be **required to follow directives issued by the authority** and secure transit permits before entering the Strait of Hormuz.
- It will operate **transit toll mechanism** for the Strait of Hormuz which is not been unveiled by Iran yet.

India-Norway relations



India-Norway relations elevated to Green Strategic Partnership The partnership aims to deepen cooperation in sectors ranging from Clean Energy to Climate Resilience, Blue economy to green shipping as Indian Prime Minister is on the official visit of Norway.

- **The Indian Prime Minister** was awarded the **Grand Cross of the Royal Norwegian Order of Merit** by His Majesty King Harald V of Norway.

Other outcomes

- **Indo Pacific Ocean Initiative:** Norway announced its participation in India's Indo Pacific Ocean Initiative (IPOI).
- IPOI was launched by India at the **East Asia Summit in 2019**, builds upon the “**Security and Growth for All in the Region**” (SAGAR) initiative.
- **India-Norway Digital Development Partnership:** Establishes a framework for cooperation on digital public goods, etc.
- **Other Agreements: Digital and Health Partnership, Space Sector Cooperation** etc.
 - India and the **European Free Trade Association (EFTA)**, including Norway, signed the **Trade and Economic Partnership Agreement (TEPA)** to strengthen economic cooperation.

Evolving partnership between India and Norway

- **Economic Relations:**
- **Blue Economy Cooperation:** Both countries are collaborating in areas such as tsunami early warning systems, **ocean ecosystem services and accounting (INECO)** etc.
- **Arctic/Polar:** India established 'Himadri,' its **first permanent Arctic research station**, in July 2008 at Ny Alesund, Norway, and has held **Observer Status in the Arctic Council** since 2013.
- **Space Cooperation:** ISRO uses Norway's **Svalbard Ground Station** for satellite data reception.
- **UN reforms:** Norway support for India's permanent membership in UN Security Council.

India and Nordic countries

3rd India-Nordic Summit 2026 held in Oslo, Norway
This Summit builds upon the previous two Summits held in Copenhagen in 2022 and Stockholm in 2018.

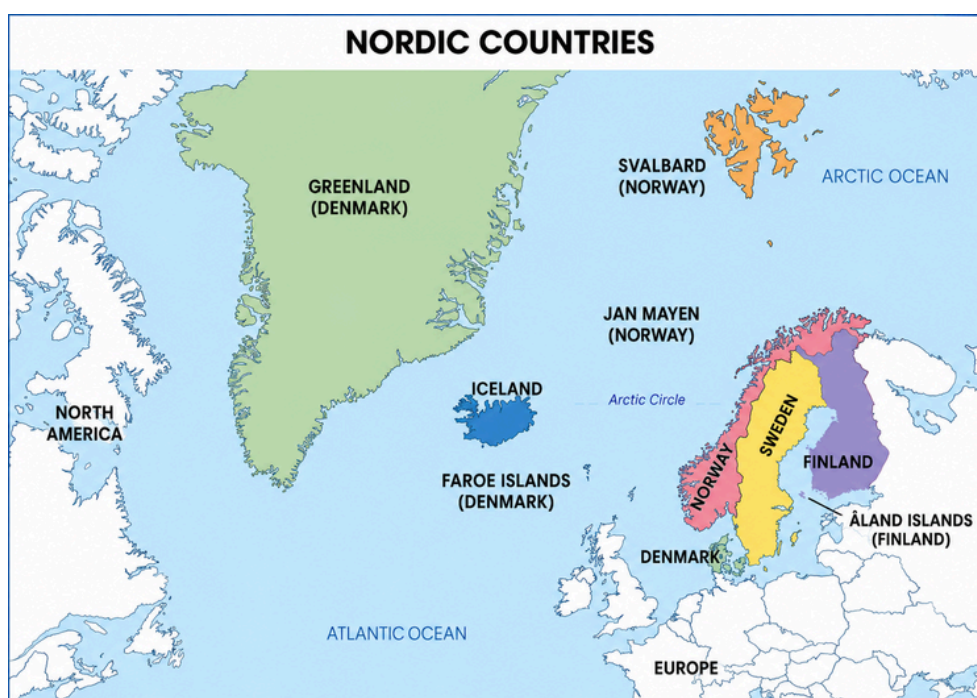
- **Nordic group** is a highly advanced regional bloc consisting of 5 countries (Norway, Sweden, Finland, Iceland, and Denmark).

Key outcomes of the Summit

- **Green Technology:** India elevated its relations with the Nordic region to a "Green Technology and Innovation Strategic Partnership".
- **UN Security Council Reform:** The Nordic Prime Ministers officially reiterated their support for India to become a permanent member.

Why are Nordic countries significant for India?

- **Economic and Trade:** The Nordic bloc is an advanced region with a combined GDP of around \$2 trillion.
 - **Bilateral trade** between India and the Nordics reached **\$19 billion** in 2024.
 - India and EFTA (includes Norway and Iceland) signed the **Trade and Economic Partnership Agreement (TEPA)** aimed for investment of USD 100 billion leading to creation of 1 million direct jobs in India.
- **Strategic Access to the Arctic Region:** As all 5 Nordic nations are members of the Arctic Council (India is an observer state), a vital gateway to Arctic engagement serves as a counterweight to **China's "Polar Silk Road"** initiative in the region.
- **Technological and Green Expertise:** E.g., Iceland offers deep expertise in geothermal energy, Sweden provides strength in advanced manufacturing, Finland specializes in telecommunications



Super El Nino

Forecasts of a potential “super” El Niño in late 2026 have raised concerns over intensified heatwaves, droughts, floods, and extreme weather events.



About Super El Nino

- An exceptionally strong El Niño event in which sea surface temperatures in the central and eastern equatorial Pacific rise by more than 2°C above normal for a sustained period.
- **El Nino** is a warm phase of ENSO (**El Niño–Southern Oscillation**) marked by abnormal warming of the central and eastern equatorial Pacific Ocean, often weakening the Indian monsoon.

Mission Mausam

Indian Institute of Tropical Meteorology (IITM) established a state-of-the-art Urban Testbed and Aerosol Observatory at the SRM Institute of Science and Technology in Chennai under 'Mission Mausam'.



About Mission Mausam

- **Launched:** In 2024.
- **Ministry:** Ministry of Earth Sciences (MoES).
- **Implementing Agency:** India Meteorological Department (IMD), the National Centre for Medium-Range Weather Forecasting (NCMRWF), and IITM.
- **Budget:** ₹2,000 crores over 2 years.
- **Aim:**
 - To make the nation ‘**Weather Ready**’ and ‘**Climate Smart**’.
 - To **improve weather and climate services**, ensuring timely and precise **observation, modeling, and forecasting information** for multiple sectors, including agriculture, disaster management, and rural development.

Teesta River

Bangladesh seeks China's support for Teesta project.



About Teesta River

- **Origin:** Tso Lhamo Lake in North Sikkim. Pahunri Glacier, Khangse Glacier and Chho Lhamo Lake are also considered its sources.
- **Course:** Flows through Sikkim and West Bengal in India before entering Bangladesh, where it joins the Brahmaputra River at Fulchori.
- **Major Tributary:** Rangit River is the main tributary of the Teesta in Sikkim.
- **Teesta Water Treaty:** In 2011, a draft agreement was proposed where India would get 42.5% and Bangladesh 37.5% of Teesta's water during the dry season.
 - Implementation was halted due to objections from West Bengal.

Musi River

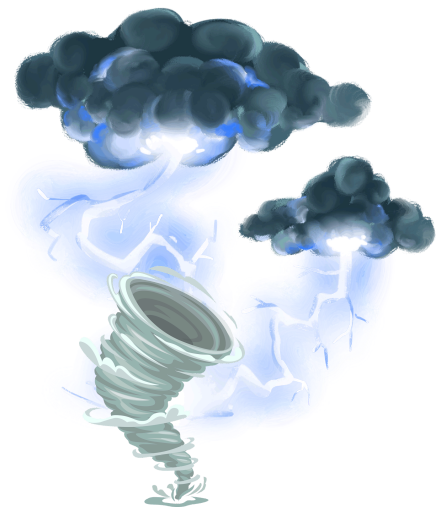
Telangana Government releases comprehensive guidelines for Phase-I of Musi Riverfront Development Project.



About Musi River

- **Origin:** Ananthagiri hills, Rangareddy district (Telangana).
- It is one of the major tributaries of Krishna River and flows into the Osmansagar and Himayatsagar reservoirs.
- It consists of 2 rivulets - Esi and Musa which then converge into Musi River.
- **Importance:** Major water sources for Hyderabad.

Thunderstorm



Unseasonal Thunderstorms Claim Multiple Lives in Uttar Pradesh Thunderstorms are severe local storms of short duration, occurring over small area but violent causing significant harm to lives and infrastructure.







About Thunderstorms

- They are **well grown cumulonimbus clouds** producing **thunder and lightning**, caused by **intense convection on moist hot days**.
 - They fall in category of Meso-gamma weather systems with spatial extent of **around 2~20 km** and **temporal scale of few hours**.
- **Types:** Considering their intensity, the thunderstorms in India are categorised as
 - **Moderate:** Loud peals of thunder with associated lightning flashes, moderate to heavy rain and maximum wind speed of **29 to 74 kmph**.
 - **Severe:** Continuous thunder and occasional hailstorm, and maximum wind speed **exceeding 74 kmph**.
- **Occurrence:** Frequency and intensity are maximum **during summer months** (March to June) due to intense heating up of atmosphere at surface level.

Life Cycle of Thunderstorms

- **Developing Stage:** Marked by **cumulus cloud being pushed upward** by a rising column of air (**updraft**); that soon looks like a tower.
 - This stage has **little to no rain but occasional lightning**.
- **Mature Stage:** While Updraft continues to feed the storm, precipitation begins to fall out of the storm, creating a **downdraft** (column of air pushing downward).
 - Causes hail, heavy rain, frequent lightning, strong winds, and tornadoes.
- **Dissipating Stage:** Eventually, **large amount of precipitation is produced and the updraft is overcome by the downdraft** beginning the dissipating stage.

NDMA through its Guidelines for Prevention and Management of Thunderstorms, 2018 provide comprehensive measures to tackle it by way of Hazard mapping, structural mitigation measures, etc.

Basic Atmospheric Conditions for Thunderstorm Formation		
Key Atmospheric Requirement	Modified Explanation	Importance in Thunderstorm Development
 Warm and Moist Air	Presence of moisture-laden warm air near the Earth's surface.	 Supplies moisture and energy needed for cloud growth and rainfall.
 Sharp Temperature Decrease with Height	Temperature falls rapidly as altitude increases.	 Produces instability that encourages rising air currents.
 Powerful Upward Air Movement (Updraft)	Rising air currents lift moist air into cooler upper layers.	 Helps condensation, cloud formation, and intensification of thunderstorms.

Prosopis juliflora

Prosopis juliflora, to be used as feedstock for India's first green methanol production plant, designed to fuel ocean-going ships.



About Prosopis juliflora

- **Leguminous tree highly resistant to drought and salinity**, recognized as one of the **world's most dominant invasive species**.
- Native to **Mexico**, first introduced by British in 1920s to 'green' Delhi and by Gujarat forest department in 1961.
- **Ecological Impacts:**
 - It is a **Phreatophyte**, a deep-rooted plant that absorbs water from the **phreatic zone below water table**, exacerbating **hydrological drought**.
 - Reduces **native plant diversity**, posing a serious threat to **Phyto diversity**.

Whitley Award

Barkha Subba and Parveen Shaikh won the Whitley Awards for protecting the Himalayan salamander and Indian skimmer habitats.



About Whitley Award

- Given by the Whitley Fund for Nature, a UK-based nature conservation charity.
- **Purpose:** Supports **conservationists** in protecting wildlife and ecosystems.
- **Recognition:** Known as the **Green Oscars**, awarded each year.

About Himalayan salamander

- It is a rare, **semi-aquatic amphibian** found in the **Eastern Himalaya**.
 - Endemic to India, Nepal and Bhutan, also found in Myanmar, Thailand, etc.
- Classified as **vulnerable** by IUCN.
- Salamanders return to their natal site to breed and lay eggs, a process known as philopatry.

About Indian Skimmer

- It is one of the three **bird species** that belong to the **skimmer genus Rynchops**.
- Classified as **Endangered** by IUCN.
- India is home to more than 90% of the global population, especially in **Chambal River**.
- Known for their **bright orange bills**, they skim the surface of rivers by inches to catch fish. They nest on sandbars, mid river islands that appear seasonally

Microplastic Pollution from Landfills



A recent study by Council of Scientific & Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) warns that India's decades-old garbage dumps are emerging as major sources of microplastic pollution.

- **Microplastics** are synthetic plastic particles **smaller than 5 mm** formed from the breakdown of larger plastics or manufactured directly for industrial use.
 - **Types:**
 - **Primary:** Intentionally manufactured small plastics (e.g., **microbeads**, industrial pellets).
 - **Secondary:** Generated from **degradation** of larger plastic waste due to sunlight, heat, and physical abrasion.

Key Findings of the Study

- **Dispersion:** **Landfill leachate** and **seasonal winds** transport microplastics into groundwater, farmlands (soil), urban areas, and coastal ecosystems.
 - These tiny, toxic particles pose a direct threat to **local agriculture, drinking water, food webs, and human health.**
- **Primary Culprits:** **Polyethene** and **polypropylene** are the most frequently identified plastics, which dangerously pollute soils and compost used for growing food.
- **Policy Gap:** Existing initiatives such as the Swachh Bharat Mission **lack dedicated mechanisms for monitoring microplastic emissions** during landfill remediation.
- **Governance Deficit:** Absence of **India-specific standardised monitoring frameworks** hinders effective regulation and evidence-based waste management.

Challenges of Landfills Management in India

- **Waste Management Deficit:** Poor waste segregation, inadequate landfill infrastructure, etc. due to **weak financial and technological capacities of Municipal bodies** hinder scientific waste processing.
- **Urban Sustainability Challenge:** Rapid urbanisation and **rising municipal waste generation** (nearly **1.62 lakh tonnes** daily) are placing immense pressure on existing landfill capacities.

Initiatives to deal with Legacy Landfills in India

- **Swachh Bharat Mission:** Focuses on scientific waste management **and legacy landfill remediation under SBM-U 2.0.**
 - Under the **Dumpsite Remediation Accelerator Programme**, **2,479 legacy dumpsites** have been identified and **over 61% of legacy waste** has already been processed.
- **Waste Management Rules:** Solid Waste Management Rules (2026), Plastic Waste Management Rules (2016), and E-Waste Management Rules (2022) promote segregation, recycling, and **Extended Producer Responsibility (EPR).**
- **GOBARdhan Schem:** Converts biodegradable waste into biogas and organic manure to reduce landfill burden.
- **Legacy Waste Biomining:** Municipal bodies are reclaiming old dumpsites through biomining and bioremediation.
- **Single-Use Plastic Ban (2022):** Prohibits identified single-use plastic items to curb plastic pollution.

E-Waste Management in India

At the Paryavaran NITI Manthan, policymakers flagged gaps in Extended Producer Responsibility (EPR) implementation as India loses recoverable e-waste materials worth nearly ₹51,000 crore.



Issues related to E-Waste Management in India

- **Weak Enforcement:** Allows spurious and non-operational recyclers to distort EPR markets through fraudulent certification.
- **Informalization:** India's formal recycling rate is 10%, compared to global average (~22%), and USA (56%).
- **Narrow focus:** EPR coverage in E-waste recycling is limited to Gold, Copper, Iron, and Aluminum.
- **Other issues:** Low skills; accessibility of advanced recycling processes; collection inefficiencies; low consumer awareness etc.

Government Measures for E-waste management

- E-Waste (Management) Rules, 2022: Strengthened EPR framework for producers and recyclers.
 - EPR E-Waste portal & Trading Platform: Developed by CPCB for registration, tracking and monitoring of e-waste, along with EPR certificate trading mechanisms.
- Battery Waste Management Rules (BWMR), 2022: Mandates collection, recycling, and refurbishment targets, prohibiting landfill disposal and incineration.
- National Critical Mineral Mission (NCMM): Aims to develop domestic recycling capacity for critical minerals from lithium-ion batteries, e-waste and industrial scrap.

Way Forward

- GST-linked verification: To improve traceability and reduce discrepancies in recycling claims.
- Expanding EPR coverage: To other high-value metals and critical minerals.
- Promote Advanced Recycling Technologies: Like hydrometallurgy, AI-based material recovery systems etc.
- Other measures: Increase authorised collection centres; integrate informal workers through training, certification and financial incentives; etc.

Status of India's E-Waste

- India is 3rd largest e-waste generator globally.
- E-waste generation increased from ~2.76 MMT (2020) to ~6.19 MMT (2024)
 - Projected to reach 14 MMT by 2030.

Bongos

Four mountain bongos arrived in Kenya on their way to their native forests after years in the care of a zoo in the Czech Republic.



About Bongo Antelope (*Tragelaphus eurycerus*)

- **Characteristics:**
 - World's largest forest antelope.
 - Recognised by its **reddish-brown body with white stripes and long spiral horns.**
 - **Two subspecies:** Western Bongo and Eastern (Mountain) Bongo.
- **Habitat:** Dense rainforests and forest-savanna ecosystems, in Central and East African forests.
- **IUCN Status:** Western Bongo (Near Threatened); Eastern Bongo (Critically Endangered).
- **Threats:** Habitat loss and poaching.

Atacama Desert

Light pollution threatens world's darkest skies in Atacama Desert impacting Astronomical Observations.



About Atacama Desert

- **Location:** Northern Chile, South America.
 - **Coastal non-polar hyper arid desert** running North to South between **Pacific Ocean (west) and Andes Range (east).**
- **Aridity:** Caused by **Humboldt Current (cold ocean current)** flowing off Pacific Coast.
- **Features:** salt pans, alluvial fans, dunes, and volcanic cones, supports astronomical observations due to clear skies.
- **Major Astronomical Observatories in Atacama:** Atacama Large Millimeter Array; Paranal Observatory, etc.

Caracal



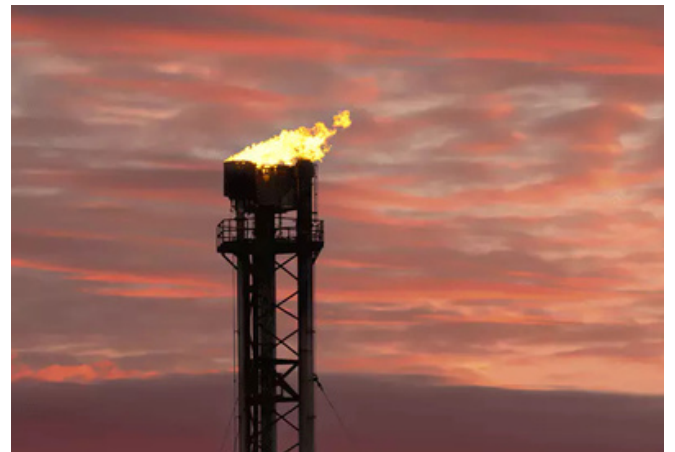
Rare caracals (locally called padang) spotted in Thar Desert near India-Pakistan border.

- According to the **Wildlife Institute of India (WII)**, only around **50 caracals** remain in India.

About Caracal (*Caracal caracal*)

- **Characteristics:** Secretive, nocturnal animal known for its quickness and ability to catch flying birds.
- **Habitat:** Dry savannah and woodland areas, scrubland, rugged mountainous regions, deserts.
- **Distribution:** Africa, Middle East, Central Asia, arid areas of Pakistan and India (Rajasthan, Gujarat, Madhya Pradesh).
- **Threat:** Habitat loss, fragmentation, and retaliatory killings etc.
- **Conservation Status:** Least concern (IUCN); Schedule I (WPA, 1972).
- **Conservation Efforts:** Caracal listed as critically endangered species under Species recovery program.

Methane Alert and Response System (MARS)



MARS will now cover coal mines and waste facilities after analysis identified Kanjurmarg landfill, Mumbai among the world's top 3 methane emitting sites.

- Until now, MARS focused on **oil and gas facilities** in countries that are part of **UNEP's Oil and Gas Methane Partnership 2.0**.

About MARS

- It is **first public global satellite detection** and notification system providing data on **very large methane emissions (super-emitters)** around the world.
- **Nodal Agency:** United Nations Environment Programme's **International Methane Emissions Observatory**.
- **Launched at:** COP27 climate summit, Sharm el-Sheikh, Egypt (2022).
- Assists implementation of **Global Methane Pledge**, which aims to **cut global methane emissions** by at least **30% from 2020 levels by 2030**.

Bhitarkanika Wildlife Sanctuary



A study revealed presence of microplastics and toxic heavy metals across sampled sites in Odisha's Bhitarkanika Wildlife Sanctuary (WLS).

- **Microplastics** are plastic particles smaller than **5 millimetres**.

About Bhitarkanika WLS

- **Location:** Kendrapara district, Odisha.
- **Geography:** Formed by the estuarine delta of the Brahmani, Baitarani, and Mahanadi rivers.
- **Ecosystem:** India's second-largest mangrove ecosystem, second only to the Sundarbans in West Bengal.
- **Designations:** National Park and Ramsar Wetland of International Importance.
- **Key Fauna:** Saltwater Crocodiles, rare white (albino) crocodiles etc.
 - **Gahirmatha Beach** is largest known rookery (Arribada) for **Olive Ridley Sea Turtles**.

Hasdeo-Arand Forest



Rajasthan's state-owned electricity producer sought to divert 1,742.6 hectares of prime forest and fell 4.48 lakh trees in Hasdeo-Arand forest.

About Hasdeo-Arand Forest

- **Location:** Spans Korba, Surguja and Surajpur districts in Chhattisgarh.
- **Type:** Dense **Sal** forests.
- **Fauna:** Home to nine **Schedule-I species**, including leopards, sloth bears and elephants.
- **Significance:** Often called the “**lungs of central India**”; catchment for **Hasdeo River and Bango Dam**; dispersal corridor for **tigers**; vital resource for **tribal communities**.

Prevention of Cruelty to Animals Act, 1960



National Crime Records Bureau (NCRB) for first time, has compiled national-level statistical data specifically tracking crimes under the Prevention of Cruelty to Animals Act, 1960.

- **Highest number of cases:** Maharashtra, Madhya Pradesh, Uttar Pradesh, Gujarat, and Tamil Nadu.
- Prevention of Cruelty to Animals Act, 1960**
- **Objective:** To prevent infliction of unnecessary pain or suffering on animals.
 - Act defines "**animal**" as any living creature other than a human being.
 - **Animal Welfare Board of India (AWBI):** Statutory body as established by Central Government under Section 4, to advise on making rules to prevent animal suffering and promotes animal welfare education.

Species in News: Gharial and Odonata



Gharial was recently spotted in Assam's Kaziranga National Park after a long time and a recent survey recorded 143 Odonata species across Western Ghats, highlighting 35% shortfall in known diversity.

About Gharial

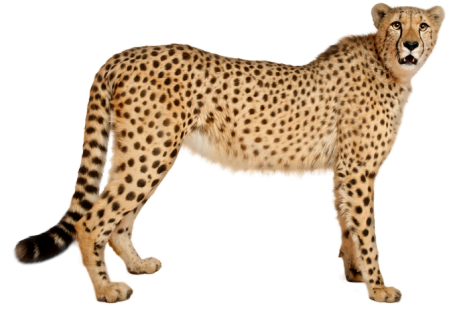
- **Features:** Massive crocodylian, with **males** 3 to 6 meters in length and **females** 2.5 to 4 meters, **weighing** between **150 and 250 kg**, with bulbous knob on the end of the snout.
- **Habitat and Distribution:** Now **only survive in India and Nepal (population ~800)**, they are **primarily in the Ganges tributaries and Mahanadi**.
 - **However**, this recent sighting confirms their presence in the **Brahmaputra river system** as well.
- **Conservation Status:**
 - **Critically Endangered** under the IUCN Red List.
 - Protected under **Schedule I of India's Wildlife (Protection) Act, 1972**.

About Odonata

- **Classification:** Comprised of **dragonflies** (suborder Anisoptera) and **damselflies** (suborder Zygoptera).
- **Habitat:** Around 6,000 known living species globally distributed in every region **except Antarctica** (highest in the tropics).
- **Characteristics:** Adult odonates are recognizable by their two pairs of transparent wings, an elongated abdomen, and a sloping thorax.

Cheetah

Two cheetahs brought from Botswana were released in the Kuno National Park, Madhya Pradesh.



About Cheetah

- **World's fastest Mammal** and the only large carnivore to be extinct in India (1952).
- Unlike other big cats (lions, tigers, leopards, and jaguars) cheetahs **don't roar**.
- **Two Species of Cheetahs:**
 - African Cheetah (IUCN Status- Vulnerable).
 - Asiatic Cheetah (IUCN Status- Critically Endangered).
- **Habitat:** **Asia** (only in arid regions of eastern Iran and India (After Reintroduction)); **Africa** (grasslands, scrublands and open forests E.g. Botswana, Namibia and South Africa)

About Project Cheetah (2022)

- **Objective:** To translocate African cheetahs to India.
- **Implementing Agency:** National Tiger Conservation Authority (NTCA).
- World's first intercontinental large wild carnivore translocation initiative.

Agarwood

Assam ships first legal agarwood chips to Saudi Arabia and the United Arab Emirates.



About Agarwood (Oudh or Gaharu)

- **Overview:** A highly valuable fragrant resinous wood used in perfumes, incense and traditional medicine.
- **Formation:** Produced when **Aquilaria trees** are **infected by fungi** and **generate resin** as a defence mechanism.
- **Species in India:** India has **three Aquilaria species**, including agarwood-producing **Aquilaria khasiana** and **Aquilaria malaccensis**.
- **Traditional Use:** Mentioned in **Ayurveda, Unani and Chinese medicine systems**.
- **Protection Status:**
 - **Appendix II of CITES.**
 - **IUCN Status:** **Aquilaria malaccensis** is classified as **Critically Endangered**.

Global Forest Goals (GFG) Report 2026

The report is prepared by the UN Department of Economic and Social Affairs and the UN Forum on Forests (UNFF) Secretariat.

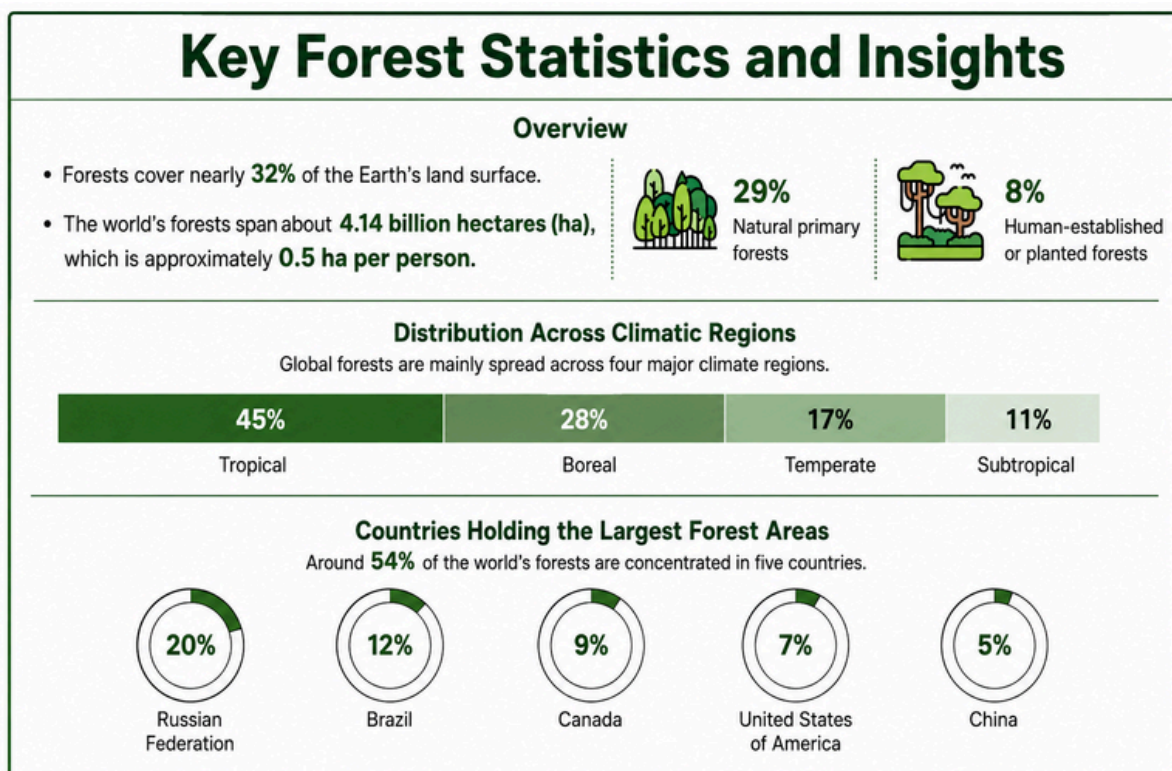
GFG	Goal / Focus Area
GFG 1	Reverse the decline in forest cover
GFG 2	Improve livelihoods linked to forests
GFG 3	Expand and conserve protected forests
GFG 4	Increase financial assistance and support
GFG 5	Strengthen forest governance systems
GFG 6	Promote stronger global cooperation

- It assessed progress towards the 6 GFG set for 2030 and the associated targets of the **United Nations Strategic Plan for Forests (2017–2030)**, launched during the 21st UNFF session.
 - UNFF (established in 2000), an intergovernmental body **composed of all UN members** and members of specialised agencies, **aims to promote the management, conservation, and sustainable development** of all types of forests.

Key Highlights of Report

- **Reduction in Forest Area:** Shrank by over 40 million hectares between 2015 and 2025.
- **Major Drivers:** Agricultural expansion and surging demand for fuelwood and charcoal.
- **Barriers to Sustainable Forest Management:** Weak governance, insecure land tenure, illegal trade, and limited institutional capacity.
- **Degradation Intensification:** Due to climate-linked pressures such as droughts, wildfires, heatwaves, pests, and diseases.
- **Finance Gap:** Despite reaching a **record US\$84 billion in 2023**, finance remains far below the estimated **US\$300 billion needed annually by 2030**.

Recommendations: The report emphasizes stronger coordination, higher forest financing, deforestation-free supply chains, and cleaner energy access to reduce dependence on fuelwood and charcoal.



Pollution From Space launch



A study found that the explosive rise of satellites launched into space since 2019 is causing potent, long-lasting black carbon or soot pollution in the upper atmosphere.

- **Black carbon** is a component of fine particulate air pollution (PM2.5). It is formed by incomplete combustion of wood, waste and fossil fuels.

Impact on the atmosphere

- Deposition of soot particles is reducing the **amount of sunlight** (acting like a form of **geo-engineering**) reaching the **Earth's surface**.
 - The soot lingers in the upper layers of the atmosphere longer than soot from earthbound sources resulting in a 500-fold greater impact on the climate.
- Satellite launches can also release chemicals such as **chlorine** into the atmosphere that can degrade ozone by reacting directly with it.

Indian Soft-shell Turtle

India's first satellite-tagged Indian soft-shell turtle has been released in Kaziranga National Park.



About Indian Soft-shell Turtle

- It is also known as the **Ganges Softshell turtle**.
- **Characteristics:**
 - Found in freshwater habitats
 - Distinguished by its prominent, tube-like snout and flattened shell.
 - Differentiated from other riverine turtles by its distinct arrowhead-shaped markings on the top of the head.
- **Distribution and Range:** Found throughout the northern plains of the Indian Subcontinent, in the Indus, Ganga, Narmada, Mahanadi basins and Brahmaputra basin.
 - It is also found in countries like Bangladesh, Nepal, and Pakistan
- **Conservation Status:**
 - **WPA, 1972:** Schedule I
 - **CITES:** Appendix I
 - **IUCN:** Endangered

Western Hoolock Gibbon



A canopy bridge was constructed bypassing railway track in Assam's Hollongapar Gibbon Sanctuary for Western Hoolock Gibbon.

About Western Hoolock Gibbon (*Hoolock hoolock*)

- It is the **only ape species native to India**.
- **Found in:** India (between south of the Brahmaputra river and east of the Dibang river in the northeastern states); Bangladesh and Myanmar.
- **Habitat:** Tropical evergreen rainforests, semi-evergreen forests, tropical mixed deciduous forests, and subtropical broadleaf hill forests.
- They swing from tree to tree in a mode of locomotion known as **Brachiation**.
- **Threats:** Hunting, logging, Mining & quarrying etc.
- **Conservation Status:** Endangered (IUCN), Schedule 1 of WPA 1972
 - Eastern hoolock gibbon is listed as Vulnerable.

Saranda Forest

Supreme Court has directed Jharkhand to notify the ecologically significant Saranda Forest as a wildlife sanctuary amid concerns over mining, elephant habitats, and conservation of sal forest landscape.



About Saranda Forest

- It is the **largest Sal forest in Asia** located in Jharkhand.
 - Sal Tree is a **moist deciduous tree**.
- Saranda means 'the land of seven hundred hills'.
- **Fauna:** It is home to endangered species of flying lizards and elephants.
- **Flora:** Sal, Kusum, mushroom, Mahua etc.
- Nearly 80% of the human population in the region belongs to Ho, Munda, Oraon and some primitive tribes.

Amur Falcons

Union Environment Minister highlighted the return migration of satellite-tagged Amur Falcon, showcasing successful community-led conservation efforts in Manipur.



Characteristics

- It is locally known as 'Kahuaipuina' in Manipur.
- **Migratory raptor:** Make voyage from breeding grounds in Russia and China (Far-East Asia) to southern Africa via India.
 - 22,000 km journey (longest sea crossing of any raptor)
 - Passes through Manipur and Nagaland.
- Feeds on dragonflies that follow a similar migration path over Arabian Sea.
- **Conservation status:**
 - IUCN: Least concern
 - WPA, 1972: Schedule I

Pangolins

Scientists are using 'DNA maps' to expose pangolin trafficking hubs.



Pangolins are one of the world's most trafficked mammals.

About Pangolin

- **Characteristics:**
- Only mammals **completely covered** with protective keratin scales.
- **Solitary, nocturnal, toothless** mammals with long sticky tongues.
- Also called “**scaly anteaters**” due to their diet of ants, termites, and larvae.
- When threatened, they **roll into a tight ball** to protect their vulnerable underbellies from predators
- Both are protected under **Schedule I** of the Wildlife Protection Act, 1972 and listed under **Appendix I** CITES.
- **Indian Pangolin:** Found across India south of the Himalayas, except most of the North-East.
- **Chinese Pangolin:** Found in Assam and eastern Himalayas.
- Of the 8 species found globally, **2 species occur in India- Indian Pangolin** (IUCN status: Endangered) and **Chinese Pangolin** (IUCN status: Critically Endangered)

Vehicle-to-Everything (V2X) Communication



TRAI releases Consultation Paper on Regulatory Framework for Vehicle-to-Everything (V2X) Communication It identifies Cellular-V2X (C-V2X) as the preferred technology, leveraging existing 4G and 5G networks.

- V2X relies on two main wireless technologies: **Dedicated Short-Range Communication (DSRC)** and **C-V2X**.
 - DSRC uses **Wi-Fi** whereas **C-V2X** is a more comprehensive standard, leveraging **cellular networks**.

About V2X Communication

- V2X refers to a **communication system** where a **vehicle exchanges real-time information (E.g. position, speed)** with other vehicles, infrastructure, pedestrians, and networks using short-range and/ or direct communications.
- It is a core component of **Intelligent Transport Systems** and connected mobility.

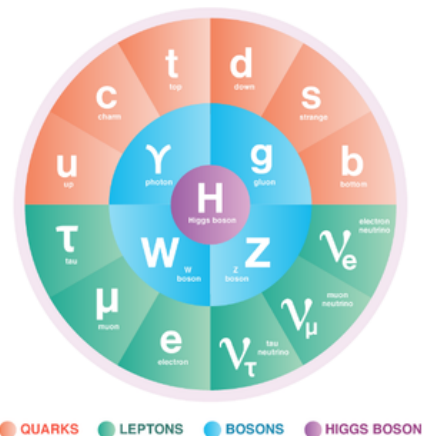
Significance of V2X

- **Road Safety:** Enables safety applications like collision avoidance, intersection management, and emergency vehicle warning systems, reducing accidents and fatalities.
 - **SDG 3.6** aims to **halve** global road traffic deaths and injuries **by 2030**.
 - E.g. **Forward Collision Warning System (USA)** showed a 9% decrease in rate of forward collision conflicts.
- **Traffic Efficiency:** Optimizes traffic flow and reduces congestion through smart signal coordination.
- **Autonomous Vehicle Support:** Enhances decision-making for self-driving systems with external data inputs.
- **Environmental Benefits:** Lowers fuel consumption and emissions contributing to UN SDGs.
- **5G & Smart City Integration:** Enables low-latency communication for connected urban mobility systems.

Challenges of V2X

- **Standardization:** Lack of unified communication protocols hinders interoperability and large-scale adoption.
- **Security & Privacy:** Vulnerability to cyberattacks necessitates strong encryption and data protection mechanisms.
- **Infrastructure Investment:** High costs of upgrading traffic systems and deploying roadside units.
- **Regulatory & Legal Issues:** Unclear laws on liability, data ownership, and insurance.

Standard Model of Particle Physics



New study finds the Standard Model of Particle Physics remains accurate, with no discrepancy.

- Refined theoretical calculations have resolved the **muon** (subatomic particle similar to electron but heavier) "anomaly" which challenged the Standard Model.

About Standard Model of Particle Physics

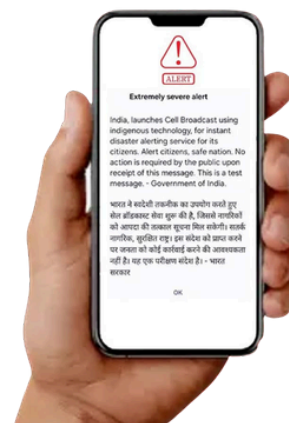
- **Basic building blocks of matter:** The Standard Model **classifies** all visible matter using **quarks** (which build protons and neutrons) and **leptons** (such as electrons).
- **Fundamental Forces:** It describes **how three of nature's forces** (electromagnetic, strong nuclear, and weak nuclear) **govern subatomic behavior**.
- **Force-carrying particles:** It explains **interactions** through **bosons** (which act as force carriers), such as photons (electromagnetism), W and Z bosons (weak force), and gluons (strong force).

Cell Broadcast System

Ministry of Communications launched Cell Broadcast System (CBS).

About CBS

- It is a **telecom-enabled public warning system** that enables authorities to **broadcast simultaneous, geo-targeted alerts** to mobile devices within a defined area.
 - It is integrated with the CAP-based **SACHET platform**.
- It is an **indigenous technology** developed by the **Centre for Development of Telematics (C-DOT)** under the Department of Telecommunications (DoT), in collaboration with the National Disaster Management Authority (NDMA) and the Ministry of Home Affairs (MHA)
- It overcomes the limitations of traditional SMS-based systems, ensuring that critical information can be disseminated quickly and efficiently to large populations within targeted areas.



Satellite Mission Drishti Launched



World's First OptoSAR Satellite Mission Drishti Launched Developed by Indian Space Start-up GalaxEye, launched aboard SpaceX's Falcon 9 rocket, it is India's largest privately built Earth Observation satellite.

About Mission Drishti

- **Uses OptoSAR:** It is the first to combine Multispectral Imaging (MSI) and Synthetic Aperture Radar (SAR) on a single platform.
- **Orbit:** Sun-synchronous Low Earth Orbit (LEO).
 - LEO orbits around Earth at an altitude of about 160 km to 2,000 km.
- **Capability:** All-weather, day-night, intuitive imaging capabilities.
 - It will promote space-based surveillance.
- **Resolution:** Highest among Indian private players.

About OptoSAR

- It is an end-to-end system of hardware and software designed to work in perfect harmony.
- **Technology Used:** SyncFusion Stack
- **Addresses Limitations of Earlier Satellites:**
 - **Optical sensors:** Deliver clear, intuitive images, but are limited by clouds and darkness.
 - **SAR:** Can see through cloud cover and operate day and night, but imagery is harder to interpret.

Achievements of Indian Space Start-ups

- **Agnikul Cosmos:** Built the world's first 3-D printed rocket engine.
- **Skyroot:** Tested India's first privately built rocket.
- **InspeCity:** Develops satellite life-extension technologies and serves as India's first fully vertically integrated platform for in-orbit servicing.

Emerging Defence Technologies



Defence Minister pushes for edge in emerging high-tech technologies At North Tech Symposium, Defence Minister stressed the urgent need for India to accelerate innovation in cutting-edge defence technologies in emerging domains.

Emerging domains of Defense Technology

- **Directed Energy Weapons (DEWs):** Ranged weapons that use concentrated **electromagnetic energy** like lasers, microwaves, or particle beams, rather than kinetic energy.
- **Hypersonic weapons Systems:** Include Hypersonic Glide Vehicles (HGVs) and Hypersonic Cruise Missiles (HCMs) operating at speeds exceeding Mach 5 and altering their flight paths mid-course which makes their interception extremely difficult.
 - E.g., Russia's Oreshnik Hypersonic missile.
- **Artificial Intelligence (AI):** For cyber defence (detecting anomalies and countering intrusions), predictive maintenance (assessing aircraft component health to reduce downtime), and sophisticated training simulations.
- **Quantum Technologies:**
 - **Quantum computers** to optimize complex military logistics and supply chains.
 - **Quantum Key Distribution (QKD)** to enable secure, un-hackable communications with instant detection of interception.
 - **Quantum sensors** to enhance detection of submarines, sea mines, stealth vehicles, and underground bunkers.

Government Initiatives for emerging Defence Technology

- **iDEX (Innovations for Defence Excellence):** To foster innovation & indigenisation in defence and aerospace.
- **ADITI (Acing Development of Innovative Technologies with iDEX):** To develop 30 critical deep-tech and strategic technologies to reduce import dependence.
- **Technology Development Fund (TDF) Scheme:** It funds industries, MSMEs, startups, and academic institutions to develop indigenous defence and dual-use technologies.
- **Institutional Framework for AI:** Through Defence AI Council (DAIC) and Defence AI Project Agency (DAIPA).
- **Hypersonic Weapons Development:** E.g., 'Dhvani' Hypersonic Glide Vehicle (indigenous model).

Space Warfare



Dual-use Satellites Blurring Lines of Modern Space War
Cyber-attacks impacting satellite networks and GPS spoofing incidents brought to focus the issues concerning dual use satellites and modern space warfare.

Space in Modern Warfare

- **Meaning:** Refers to **military conflict** conducted into or from outer space, aimed at disrupting or destroying satellites and other space assets.
 - It involves **Kinetic** (Anti- satellite weapons) and **Non-kinetic weapons** (cyber warfare and electromagnetic pulses (EMPs)).

Consequences of Space Warfare

- **Swiftiness and Scale:** Space amplifies weapon platforms by **increasing velocities** for missile trajectories, thus, enhancing speed and accuracy, potentially escalating conflicts.
- **Military Actions:** Impair military operations like distant **Drone operations**, **Anti-Access and Area Denial (A2/AD)**, and **Manned Unmanned Teaming (MUMT) missions**, etc.
- **Debris:** A minuscule fragment of wreckage from an obliterated satellite can harm spacecraft like International Space Station.
- **Disruption of Essential Services:** Including GPS Systems, Banking and power grids causing blackouts, etc.

Key Measures Preventing Warfare in Space

- **Outer Space Treaty (1967):** Prohibits deployment of weapons of mass destruction into space.
- **The Liability Convention (1972):** Expands upon Article 7 of Outer Space Treaty, establishing absolute liability for launching states for damages caused.
- **The Moon Agreement (1984):** Moon and other celestial bodies be used **exclusively for peaceful purposes**.
- **Key Indian Initiatives:** **Defence Space Agency (DSA)** to protect Indian interests in outer space; **Guidelines for Space Cyber Security** by Indian Computer Emergency Response Team (CERT-In), etc.

Space in Contemporary Warfare: Key Dimensions



Space as a Key Strategic Frontier: Outer space has emerged as a critical strategic domain. It underpins navigation, secure communication, remote operations, surveillance, and information warfare.



Expansion of Anti-Satellite (ASAT) Capabilities: Several nations, including China, the United States, Russia, and India, have developed and demonstrated ASAT technology. India carried out its ASAT mission through Mission Shakti in 2019.



Military and Civilian Utility of Satellites: Satellites have both civilian and defence applications. They are vital for missile defence, reconnaissance, intelligence gathering, and robust communication networks.

Sodium and Fluoride-Ion Batteries



Alternatives 'Beyond-Lithium' Batteries Emerge amid Rising Sectoral Demands Battery alternatives like Sodium and Fluoride ion batteries offer huge potential apart from lithium ion batteries.

About Sodium-Ion Batteries

- **Meaning:** Function similarly to lithium-ion batteries but **use sodium- ions (Na⁺) as charge carriers**.
 - **Rechargeable battery** that generates electricity by moving ions between two electrodes: a positive electrode (cathode) and a negative electrode (anode).
- **Benefits Offered:**
 - **Availability:** Sodium being abundant, inexpensive, and globally available.
 - **Safer:** Lower risk of catching fire compared to Lithium batteries when operated in extreme conditions.
 - **Transportation and storage:** Typically safer compared to lithium.

About Fluoride-Ion Batteries

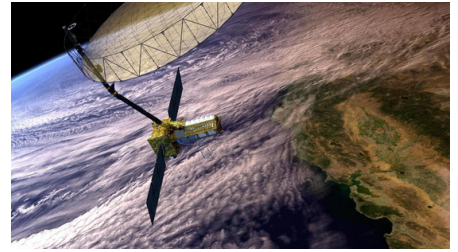
- **Meaning:** Rechargeable system in which fluoride ions (anions) serve as **mobile charge carriers between electrodes during cycling**.
- **Benefits Offered:**
 - **High Energy Densities:** Could deliver more than 2000Wh/kg (compared 500 Wh/kg for Lithium ion batteries).
 - **Availability:** Fluorine is **far more abundant than lithium** with a larger supply chain.

Lithium-Ion Batteries

- **About:** **Rechargeable battery**, widely used in **portable electronics and electrified transportation**.
 - **Anode and cathode** store lithium, **electrolyte** carries positively charged lithium ions from anode to cathode and vice versa through separator.
- **Benefits:** **Higher energy densities** compared to lead-acid batteries (75 Wh/kg) and sodium ion batteries (100-160 Wh/kg); low maintenance; low self-discharge rate (1.5-2% per month); does not contain toxic lead or cadmium.
- **Constraints:** High import dependence and supply chain disruptions issues(depends on scarce lithium, graphite, cobalt, nickel), slow charging rate, etc.

NISAR

NASA's NISAR satellite observations revealed rapid land subsidence in Mexico City due to excessive groundwater extraction.

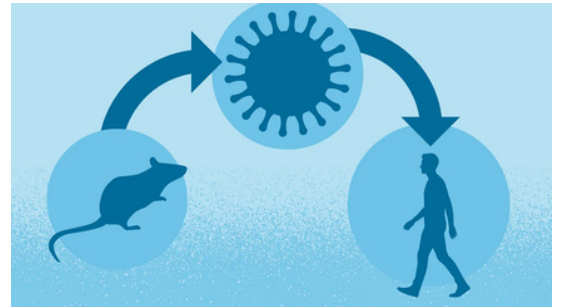


About NISAR (NASA-ISRO Synthetic Aperture Radar) Satellite

- **Nature:** First joint Earth observation satellite mission between ISRO and NASA.
- **Launch Vehicle:** GSLV-F16 (GSLV Mk-II)
- **Orbit:** Sun-synchronous polar orbit
- **Mission Life:** 5 years
- **Dual Bands:** First satellite to use both L-band and S-band Synthetic Aperture Radar (SAR) from a single platform **Unique Feature.**
- **Imaging Capability:**
 - Fully polarimetric and interferometric data
 - ~240 km swath coverage
 - Revisits Earth every 12 days
- **Technique Used:** Advanced SweepSAR technology for high-resolution wide-swath imaging.

Hantavirus

Hantavirus outbreak has trapped 150 people on Dutch flagged cruise ship MV Hondius leaving 3 persons dead.



About Hantavirus

- Zoonotic viruses carried by rodents (rats and mice) that can cause severe disease in humans.
- **Transmission:** People usually get infected through contact with infected rodents or their urine, droppings or saliva.
- It causes 2 types of syndromes:
 - **Hantavirus Cardiopulmonary Syndrome (HCPS):** A rapidly progressive condition affecting the lungs and heart.
 - **Haemorrhagic fever with renal syndrome (HFRS).**
- There is **no specific cure** available.

Brain-Eating Amoeba

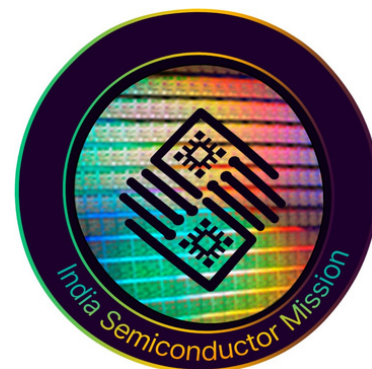
Scientists warn that rising temperatures due to climate change can spread the risk of disease-causing amoeba, particularly, brain-eating amoeba.



About Brain-Eating Amoeba

- Lives in **soil and warm freshwater lakes, rivers, ponds, and hot springs** around the world.
- Enters the **body through the nose**, and attacks the brain tissues.
 - Can cause an infection called **Primary Amebic Meningoencephalitis (PAM).**
 - PAM is a **rare, fulminant infection of central nervous system**, that is always fatal.

India Semiconductor Mission



Recently Cabinet approved two more semiconductor manufacturing units under ISM.

- It includes country's **first commercial Mini/Micro-LED display facility** based on **GaN (Gallium Nitride) Technology** in Dholera, Gujrat.
- GaN, a semiconductor, is a core material for blue/green micro-LEDs and is better suited for high power and high-frequency applications.

About ISM

- **Launched:** In 2021 with an aim to build a strong semiconductor and display ecosystem, positioning India as a global hub for electronics manufacturing and design.
- **Ministry:** Ministry of Electronics and Information Technology.
- **Four Sub-Schemes:**
 - Semiconductor Fab Scheme
 - Display Fab Scheme
 - Compound semiconductor and ATMP scheme
 - Design Linked Incentive Scheme

ANEEL Fuel

Clean Core Thorium Energy (CCTE) successfully completed high-burnup irradiation testing for its patented 'ANEEL' fuel at the Idaho National Laboratory's Advanced Test Reactor.

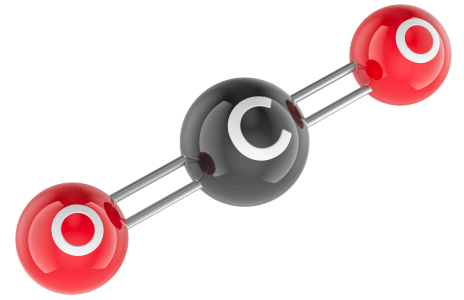


About ANEEL (Advanced Nuclear Energy for Enriched Life) Fuel

- It is a **unique blend of thorium and a small amount of enriched uranium** (High Assay Low Enriched Uranium).
 - The fuel is named to honour Dr. Anil Kakodkar, one of India's foremost nuclear scientists.
- **Significance of ANEEL Fuel:**
 - Significant **reductions in nuclear waste**
 - Enhancing **India's energy security** using domestically available thorium
 - **Saves money** by safely generating more power from current reactors while reducing their day-to-day running costs.

Sulphur Dioxide

As per a study of IIT Delhi, India could prevent an estimated 1,24,564 deaths every year by fully mitigating sulphur dioxide (SO₂) emissions through systems like Flue Gas Desulphurisation (FGD).



About SO₂

- It is a colorless, toxic gas with a pungent, choking odor.
- **Role in secondary pollutants:** SO₂ reacts in the atmosphere to form secondary inorganic aerosols, including sulphate, nitrate and ammonium.
 - These pollutants **add to PM2.5**, the fine particulate matter linked to cardiovascular and respiratory diseases.
- It is a pollutant monitored under the **National Ambient Air Quality Standards (NAAQS)** notified by the Central Pollution Control Board (CPCB).
 - NAAQS includes NO₂, PM₁₀, PM_{2.5}, Ozone, Lead, CO, Ammonia, Benzene, Benzo(a)pyrene, Arsenic, and Nickel.
- **Major sources:** coal-fired power plants (largest), smelting metallic ores, petroleum refining, volcanic eruptions, and emissions from transportation (ships/locomotives).

Extragalactic Jets

Scientists discovered that the composition of plasma can lead to the strikingly different appearances of extragalactic jets emerging from the regions surrounding black holes.



About Extragalactic Jets

- They are highly energetic, narrow streams of plasma and radiation ejected from regions surrounding supermassive black holes at galactic centres.
- **Speed & Extent:** Travel at nearly the speed of light and extend thousands of light-years into space.
- **Radiation Spectrum:** across the electromagnetic spectrum, from radio waves to gamma rays.
- **Source of Energy:** Powered by accretion of matter onto supermassive black holes and guided by strong magnetic fields.

INS Sagardhwani

INS Sagardhwani arrived in Vietnam marking a significant step towards scientific cooperation.



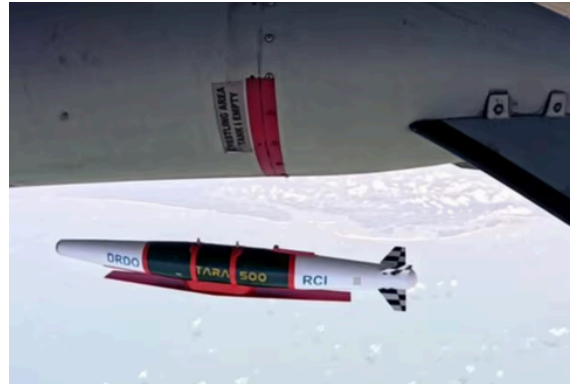
- It was flagged off for 5th edition of the Sagar Maitri (SM-5) initiative.
- Sagar Maitri is a flagship collaborative initiative of Indian Navy and DRDO, aligned with 'Mutual and Holistic Advancement for Security and Growth Across Regions (MAHASAGAR)' vision.

About INS Sagardhwani

- Specialised oceanographic research vessel commissioned in July 1994.
- Designed by Naval Physical and Oceanographic Laboratory (NPOL) of DRDO and built by Garden Reach Shipbuilders & Engineers (GRSE).

TARA Weapon

DRDO and the Indian Air Force (IAF) successfully conducted the maiden flight trial of the Tactical Advanced Range Augmentation (TARA) weapon in Odisha.



About TARA

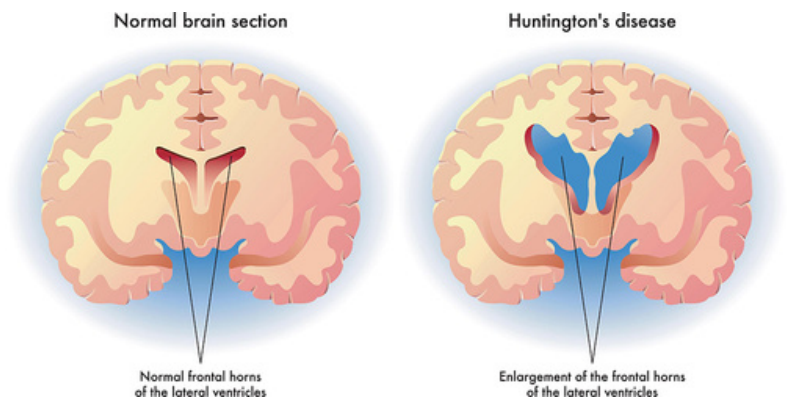
- It is India's first indigenous glide weapon system that converts **unguided warheads into precision-guided weapons**.
- **Developed by:** the Research Centre Imarat, Hyderabad, along with other DRDO laboratories.
- **Advantage:** Its **stand-off capability** allows pilots to release bombs from outside hostile air defence coverage.
- **Once deployed**, the bombs glide at **high subsonic speeds (>650 km/h)**, with a **range of more than 80 km**, making interception difficult.
- **Other glide bomb in India:** Gaurav (Long Range Glide Bomb - LRGB), SAAW (Smart Anti-Airfield Weapon), etc.

Huntington's Disease

Huntington's patients seek rare disease status for the disease.

About Huntington's Disease

- **Nature:** Huntington's Disease is a hereditary neurodegenerative disorder causing gradual breakdown of brain nerve cells.
- **Affects:** Movement, behaviour, cognition and personality.
- **Cause:** Caused by genetic mutation inherited from a parent.
- **Types:**
 - **Adult-Onset:** Most common form, usually appears between 30–50 years.
 - **Juvenile:** Rare form occurring in children/adolescents.
- **Major Symptoms:** Uncontrolled movements, Cognitive decline, Behavioural and psychiatric problems and Progressive loss of motor functions.



'Divyashtra' Missile

India conducted the 2nd successful flight-trial of 'Divyashtra' Missile from Dr. APJ Abdul Kalam Island, Odisha.



About 'Divyashtra' Missile

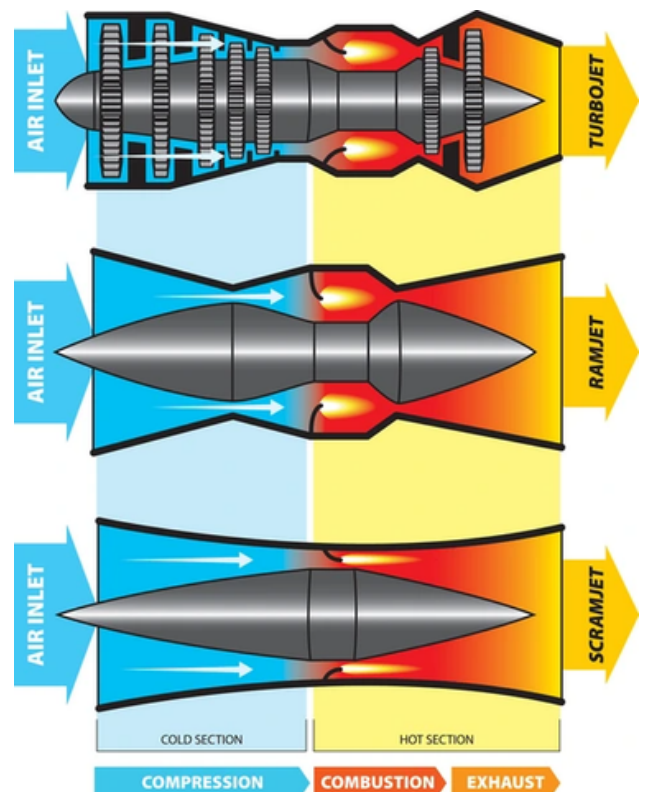
- It is an advanced Agni Missile equipped with **Multiple Independently Targeted Re-Entry Vehicle system (MIRV) system.**
- **MIRV system:** Originally developed in the **early 1960s**, it allows a **single missile to carry multiple nuclear warheads**, each capable of striking **different targets independently.**
 - **The United States of America** (first country to develop MIRV technology), **Russia, the United Kingdom, France, and China** also have MIRV Technology.

Scramjet propulsion system

DRDO successfully conducted a test of its **Actively Cooled Full Scale Scramjet Combustor**, achieving a **run-time of over 1,200 seconds** (earlier 700 seconds).

Scramjet Propulsion System

- **Concept:** Scramjet stands for **Supersonic Combustion Ramjet.**
 - It is an advanced **air-breathing jet engine** designed to operate efficiently at hypersonic speeds by allowing the combustion of fuel to occur supersonically.
- **Operating Mechanism:** Vehicle's forward motion to "ram" and compress external air into the combustor.
 - It uses **atmospheric oxygen as its oxidizer** as it flies through the air.
- **Fuel Types:** **Hydrogen** or advanced **liquid hydrocarbon endothermic fuels.**
- **Advantages:** Reduce total weight of vehicle, making it a highly efficient propulsion system for **low-cost, reusable access to space** and an ideal foundation for **hypersonic cruise missile development.**



Fermented Organic Manure

Indian Biogas Association (IBA) has called for 10% mandatory blending of fermented organic manure (FOM) with chemical fertilizers by 2030.



About FOM

- FOM is a type of organic fertilizer produced through a **controlled fermentation process of organic materials** like manure, crop residues, and compost.
- It is a **byproduct of operational biogas or compressed biogas (CBG) plants** used as a fertilizer.
- **Uses:** FOM supplies essential plant nutrients, rejuvenates soil health, enhances beneficial microbial activity, and strengthens climate resilience in agricultural systems.

Malaria vaccine (RTS, S/AS01E)

A study found that the world's first approved malaria vaccine (RTS, S/AS01E) reduced overall child deaths by 13 % in parts of Africa.



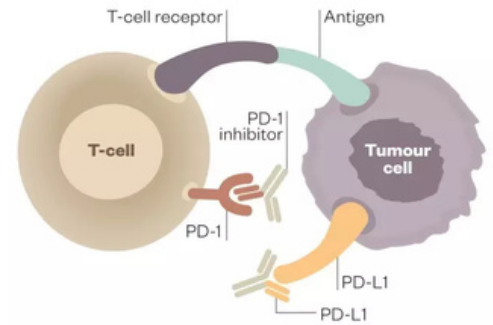
- **Malaria** is a life-threatening disease mostly spread to people through the bites of some infected **female Anopheles mosquitoes**.
- It does not spread from person to person.

About Malaria vaccines (RTS, S/AS01E)

- It was recommended by the World Health Organization (WHO) in **2021** for use among children living in **sub-Saharan Africa** and other regions with **P. falciparum malaria** transmission.
- **R21/Matrix-M** vaccine is the second malaria vaccine approved by WHO in 2023.

PD-1 inhibitors

Scientists have found that drugs called PD-1 inhibitors can make the blood-brain barrier more permeable.



About PD-1 inhibitors

- PD-1 inhibitor stands for **Programmed Cell Death Protein-1 inhibitor**.
- A PD-1 inhibitor is a type of immunotherapy drug (**checkpoint inhibitor**) that blocks the PD-1 checkpoint protein, helping the immune system recognize and attack cancer cells more effectively.
 - An **immune checkpoint inhibitor (or just checkpoint inhibitor)** is a type of monoclonal antibody, a lab-made protein designed to block checkpoint proteins.
 - **Checkpoint proteins** act like switches which turn the immune response on or off and regulate its degree of activation.
- **Immunotherapy** is a broad category of cancer therapies that triggers the body's immune system to fight cancer cells.

Enterprise AI

OpenAI and Anthropic are expanding into enterprise AI solutions, a trend that may disrupt the traditional outsourcing-driven Indian IT industry.



Enterprise AI

- **Enterprise AI** refers to the integration of Artificial Intelligence technologies such as machine learning, Natural Language Processing (NLP) and computer vision into large organizations to improve efficiency and decision-making.
- **Application:** Used in supply chain, finance, HR, healthcare, cybersecurity and customer service.
 - Enables automation, fraud detection, predictive analytics and personalized services.
- **Challenges:** Requires scalable, secure and governed systems with high-quality data infrastructure and may compromise data privacy, cybersecurity risks and workforce displacement.

Coal/Lignite Gasification Projects'



The scheme will help realize target of gasification of 100 MT of coal by 2030 under the National Coal Gasification Mission, 2021.

- Coal gasification is a thermochemical process that converts coal into a versatile, combustible gaseous mixture known as synthesis gas (or syngas).
 - Syngas is a mixture of CO and hydrogen and is used to produce downstream products like urea, methanol, synthetic natural gas (SNG), and ammonia.
- Status of Coal/Lignite in India: Coal reserves (401 billion tonnes); Lignite reserves (47 billion tonnes).

Key Features of the Scheme

- **Target:** To gasify approximately 75 million tonnes (MT) of coal and lignite by incentivizing domestic industries.
- **Financial Outlay:** Rs. 37,500 crore.
 - **Financial Incentives:** maximum of 20% of the cost of Plant and Machinery, disbursed in four installments linked to project milestones.
 - **Funding Caps:** ₹5,000 crore for single project, ₹9,000 crore for single product-centered projects (excluding SNG and urea), and ₹12,000 crore for any single entity group across all projects.
- **Policy Support:** To provide long-term investment certainty, the government has extended the coal linkage tenure up to 30 years under Non-Regulated Sector (NRS) linkage auction framework.

Significance of Scheme

- **Energy Security:** Reduces exposure to global price volatility and import dependence on ammonia (~100% imported), methanol (80-90%), LNG (>50%), and urea (~20%).
- **Environmental Benefits:** Better emission control, reducing pollutants like sulfur dioxide (SO₂), nitrogen oxides (NO_x), etc.
- **Economic Impact:** Expected to attract major investments and generate ₹6,300 crore annual revenue and supports Atmanirbhar Bharat and Make in India initiatives.
- **Employment:** Likely to create around 50,000 direct and indirect jobs.

AI-enabled advanced weather forecast systems



Two systems include first ever AI-enabled “Forecast of Monsoon Advance over Different Parts of the Country” and a “High Spatial Resolution Rainfall Forecast for Uttar Pradesh” as a pilot service.

About AI-enabled advanced weather forecast systems

- **Ministry:** Ministry of Earth Sciences (MoES).
- **Developed by:** Jointly by the India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM), Pune, and National Centre for Medium Range Weather Forecasting (NCMRWF).
- **Aim:** To deliver hyper-local, impact-based and AI-driven weather services and to provide Localized Weather Information up to 10 Days in Advance.
- **Coverage:** AI-enabled Systems will provide Hyper-Local Weather forecasts generating ‘block’ level forecasts for 16 States and Over 3,000 Sub-districts.
 - Hyper-local weather refers to weather data and forecasts that focus on a very small, precisely defined geographic area, often at the scale of a neighborhood, city block etc.
- **AI enabled pilot project for Uttar Pradesh:** It will generate rainfall forecasts at 1-km spatial resolution.

Significance of Hyperlocal Weather Forecasting

- **Urban Planning:** Monitors air quality, heat distribution, and rainfall for disaster management/prevention.
- **Agriculture:** Provides precise soil moisture, temperature, and precipitation data for crop management.
- **Events and Recreation:** Delivers accurate weather information for sporting events, outdoor activities etc.

Government Initiative for Efficient Weather Forecasting

- **Mission Mausam:** To enhance the accuracy, resolution and lead time of forecasts.
 - Integration of the Bharat Forecast System (BFS) under **Mission Mausam**.
- **Mobile applications:** such as **MAUSAM**, **MEGHDOOT**, **DAMINI**, and **UMANG** to disseminate public information.
- **Mausamgram portal:** By India Meteorological Department for accessibility of forecast.

Sovereign AI

A report by IBM and IndiaAI, highlighted that India's AI strategy is being decisively shaped by the rise of sovereign cloud and sovereign AI as foundational guardrails.



- The report highlighted that AI could add over **\$500 billion to India's economy by 2030** and 83% of Indian AI startups focus on applying existing models.

About Sovereign AI

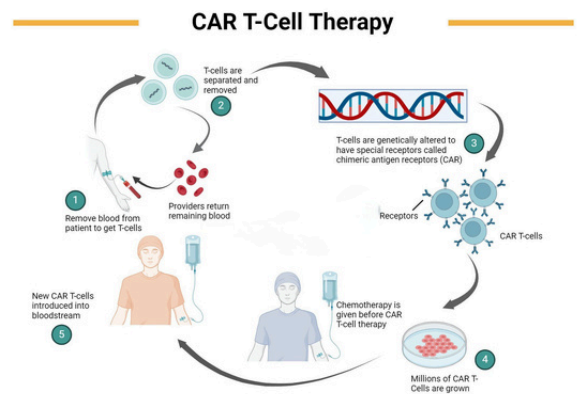
- It is a nation's ability to design, develop, and regulate AI systems using its own **domestic infrastructure, national data, and indigenous workforce**.
- **IndiaAI Mission**, launched in 2024, promotes sovereign AI through development of shared **national AI compute infrastructure model**, IndiaAI Innovation Centre for development of indigenous foundational models or Large Language Models, IndiaAI Datasets Platform (AIKosh), etc.
- **Indian Sovereign AI models**: Sarvam AI's models, Vachana by Gnani.ai (text-to-speech model), Param2 17B by BharatGen.

Significance of Sovereign AI

- **Data Sovereignty**: Compliance with data residency, privacy and consent requirements, ensuring national control over sensitive citizen and strategic data.
- **National Security**: Strengthens cyber resilience and protection of critical infrastructure.
- **Strategic Autonomy**: Reduces dependence on foreign AI platforms and technologies.
- **Trusted AI Ecosystem**: Enables secure data-sharing and cloud infrastructure in banking, healthcare and manufacturing.
- **Inclusive AI Development**: Improves AI relevance for local languages and socio-cultural contexts.

CAR-T Cell Therapy

Technology Development Board entered into an agreement is under the Indo-Singapore collaborative framework to develop treatment for Multiple Myeloma (incurable blood cancer) using CAR- T cell therapy.



About CAR-T cell therapy

- CAR-T cell therapy is called a "living drug" because it uses the patient's own living immune cells (T-cells).
- It is a type of immunotherapy which modifies immune cells, specifically T-cells, by turning them into potent cancer fighters known as CAR-T cells.
 - T-cells are special cells (types of white blood cells) whose primary function is cytotoxic, meaning killing other cells.
 - T cells are taken from patient blood and are changed in the lab by adding a gene for a man-made receptor (called CAR) then returned to patient.
 - CARs are proteins that assist the T-cells to recognise and attach to a specific protein present on cancer cells.

Ebola

World Health Organization declares Ebola outbreaks in Congo and Uganda a Public Health Emergency of International Concern.



About Ebola Virus

- Ebola virus disease (EVD) is a **rare but severe illness in humans**.
- **Zoonotic Transmission:** Meaning it is transmitted to **people from wild animals** (such as fruit bats, porcupines and non-human primates) and then spreads in the human population.
- **Transmission Medium:** Contact with the blood, secretions, organs or other bodily fluids of infected person.

Advanced Medium Combat Aircraft



Defence Minister laid foundation stone for AMCA programme facility in Andhra Pradesh.

About Advanced Medium Combat Aircraft (AMCA)

- AMCA is India's indigenous 5th-generation medium-weight stealth multirole fighter jet.
- **Developed by:** Aeronautical Development Agency, DRDO.
- **Variants:** AMCA Mk1 with GE-F414 engines; Mk2 planned with indigenous engines.
- **Timeline:** Prototype expected by 2028-29 and induction targeted by 2034-35.

Characteristics of 5th Generation Fighter Jet

- **Twin-engine:** Provides higher level of air safety in case of engine failure.
- **Stealth Capabilities:** Minimizes radar, infrared and visual signatures to delay or prevent enemy detection and engagement.
- **Super cruise:** Ability to maintain **supersonic** flight (speeds >Mach 1) without engaging fuel-heavy afterburners, significantly increasing its **operational range and efficiency**.
- **Others:** **Integrated Avionics, AI Integration** to enhance pilot-aircraft interface, **Resilient Networking and Communication**.

Examples of Operational 5th Generation Fighter Jets: F-22 and F-35 (United States), Sukhoi Su-57 (Russia), Chengdu J-20 (China).

Strategic Importance of 5th Generation Fighter Jet AMCA

- **IAF Modernisation:** Fills critical capability gap post-MiG-29/Mirage phaseout, helps restore IAF's depleted squadron strength.
- **Technological Sovereignty:** Reduces dependency on foreign platforms, enhances long-term defence autonomy through Make in India.
- **Atmanirbhar Bharat:** Enhances India's indigenous defence capabilities by fostering a **robust domestic aerospace industrial ecosystem**.

Decentralised Bioenergy Systems



Decentralised bioenergy systems present a solution for the uncertain global energy supply chains and rising fuel prices in India.

About Decentralised Bioenergy Systems

- It refers to the local production and consumption of heat, electricity, or biogas from organic waste and crop residues.
- **Key Technologies involved:**
 - **Biomass Gasification:** Converts dry agricultural residues (husk, stalks) into combustible producer gas to run small engines or provide industrial heat.
 - **Biogas & Anaerobic Digesters:** Converts wet waste (food scraps, animal manure) into biogas for cooking and electricity.

Significance

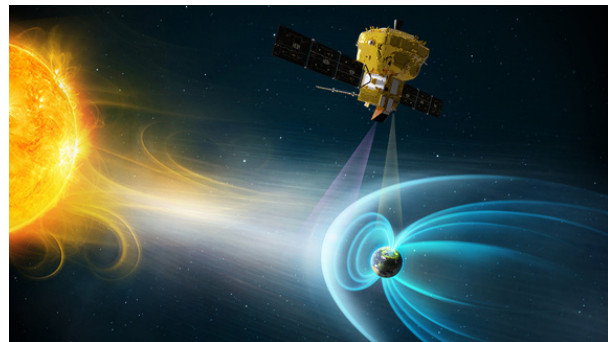
- **Waste Management:** Turns municipal solid waste and farm residues into valuable resources.
- **Energy Security:** Provides off-grid and micro-grid solutions to remote or underdeveloped regions.
- **Economic Empowerment:** Drives local job creation and supports small-scale farming and MSME operations.

Initiatives taken for Promoting Bioenergy

- **National Bioenergy Programme (NBP):** It includes Waste to Energy, Biomass and Biogas Programme.
- **National Policy on Biofuels (2018, Revised 2022):** Advanced the target of 20% blending of ethanol in petrol to 2025-26.
- **SATAT (Sustainable Alternative Towards Affordable Transportation):** To establish an ecosystem for production of **Compressed Bio Gas (CBG)** from various waste/ biomass sources.
- **GOBAR-Dhan Scheme (Galvanizing Organic Bio-Agro Resources):** Converts biodegradable wastes like cattle dung, agricultural residue into wealth and energy.
- **Pradhan Mantri JI-VAN Yojana:** Provides financial support for advanced biofuels projects.

SMILE Mission

The SMILE mission successfully launched aboard a Vega-C rocket from Europe's Spaceport in French Guiana (South America).

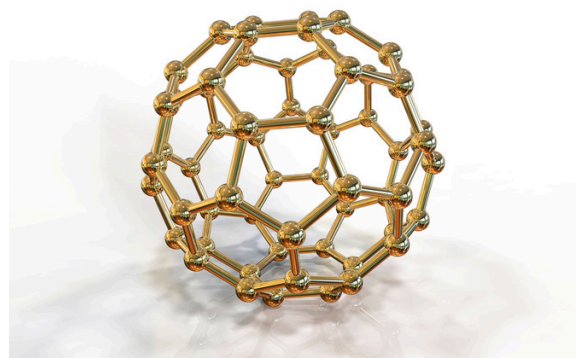


About SMILE Mission:

- **Joint Mission:** European Space Agency (ESA) and the Chinese Academy of Sciences (CAS).
- **Objective:** to capture the first-ever panoramic imaging of the interaction between the solar wind and Earth's magnetosphere, helping scientists understand space weather phenomena like geomagnetic storms.
- **Instruments:** Light ion analyser, Magnetometer, Soft X-ray imager, Ultraviolet aurora imager.
- **Key Technological Innovations:**
 - **World's First Space-Borne Soft X-ray Imager (SXI):** To visualize the previously "invisible" boundaries of Earth's magnetosphere.
 - **Integrated Observation System:** To simultaneously capture global-scale imaging and take direct measurements of solar wind parameters.

Gold Nano Particles

Scientists at the Institute of Nano Science and Technology (INST) have developed a highly efficient, ultrathin, and flexible film embedded with Nano-gold particles.



About Nano-gold particles

- Nano gold is **tiny particles of gold** that are so small they're measured in nanometers.
- **Color:** It can look red, orange, or even blue, depending on the size and shape of the nanoparticles and the distance between them.
- **Applications of Gold Nano Particles:**
- **Medicine & Diagnostics:** Targeted delivery of drugs to cancer cells, medical imaging and photo-thermal therapy etc.
- **Environmental Applications:** Detects heavy metals and pollutants in water and soil.
- **Others:** Used in sensors, and Nano-electronics.

Girmitiyas

External Affairs Minister begins official visit to Jamaica, Suriname, Trinidad and Tobago



About Girmitiyas

- Girmitiyas were **Indian indentured labourers** who migrated to British colonies in the mid-to-late 19th century.
 - They filled the labour shortage caused by the **British Slavery Abolition Act of 1833**.
 - The term **Girmit** is a **mispronunciation of Agreement**, referring to their migration contracts.
- **Distribution:** Mauritius, Fiji, West Indies, Mauritius, South Africa, Caribbean (mostly Trinidad and Tobago, Guyana, Suriname, and Jamaica).
- **Source Regions:** Mostly from the **eastern United Provinces** and **Bihar**.
- **Significance:** Deepen bilateral ties, enhance Soft power diplomacy etc.

Somnath Temple

75th anniversary of Reopening of Somnath Temple It also marks 1000 years since the first attack on the temple in 1026 A.D by Mahmud Ghazni.



About Somnath Temple

- **One of twelve Aadi Jyotirlingas.**
 - Jyotirlinga means ‘column or pillar of light’.
- **Location:** Prabhas Patan along the Saurashtra coast in Gujarat.
- **Literary Sources:** Dwadasha Jyotirlinga Stotram (Places Somnath first among the twelve Jyotirlingas), Skanda Purana, Prabhasa Khanda, Rig Veda and Bhagavat.
- **Mythology Associated:** Built by Chandra Dev, the Moon God, who worshipped Lord Shiva here to free himself from a curse. Som means Moon. Nath means Lord.
- **Religious Sects Associated:** Shaivism, Vaishnavism, Shaktism.
- **Foreign Travellers Associated:** Mentioned by the Arab traveler Al-Biruni.
- **Architecture:** Chalukya style also called **Kailash Mahameru Prasad Style.**
 - **Features:**
 - **Vesara Style:** Blends Nagara-style with Dravidian-style.
 - **Constituents:** Shikhara, Garbhagriha, Sabha Mandap, Nritya Mandap, traditional carvings, a spacious clean courtyard, and Baan Stambh pointing toward the South Pole.
 - **Material:** Built of sandstone.
- **Restoration:**
 - **12th century:** Kumarapala
 - **13th century:** King of Junagadh
 - **18th century:** Ahilyabai Holkar
 - **1951:** Pran Pratishtha (consecration) done by Dr. Rajendra Prasad.
 - It was initiated by Sardar Patel in 1947.

Somnath Temple Significance



Educational Advancement

Encourages digital education through mobile learning programs in rural communities.



Food Assistance

Organizes food support campaigns and distributes essentials to needy people.



Support for Underprivileged Groups

Empowers women through Bilva Van initiatives and extends help to specially-abled individuals.



Environmental Conservation

Miyawaki forests contribute to reducing carbon emissions and enhancing green cover.



Emergency & Disaster Aid

Offered relief and assistance to communities during the COVID-19 crisis.

Chola Copper Plate Inscriptions



Netherlands Returns 11th-Century Chola Copper Plates to India during Prime Minister's State Visit to Netherlands The artefacts have been in possession of **Leiden University** and are popularly known as **Leiden copper plates**.

- During the visit, two countries also elevated their relations to **Strategic Partnership**.

About Leiden Copper Plates

- Consists of 21 large and 3 small copper plates fastened with a bronze ring bearing the seal of **Chola king Rajendra Chola I** and another set carrying the seal of **Kulottunga Chola I**.
- **Language:** Tamil and Sanskrit.
- These plates were brought to Netherlands in **1712 from Nagapattinam** by Florentius Camper, a Dutch missionary, associated with **Dutch East Indies Company**.
- **Significance:** Provide insights into Chola Empire's administration, taxation, land reforms, irrigation systems, and trade practices.
 - Records **grant of Anaimangalam village to Buddhist vihara** built by Srivijaya rulers of Southeast Asia, signifying religious harmony and links with Southeast Asia.

About Copper Plate Inscriptions

- Official records **engraved on copper sheets** and usually tied together with a ring bearing the royal seal.
- They usually **recorded grants of land**, lists of royal lineages carrying royal seal, religious grants, donations etc.
- Earliest known copperplate inscription is **Sogaura Copperplate of Mauryan Era** mentioning hunger relief efforts (prakrit language and Brahmi script).
- Majority of the copper plate inscriptions are concentrated in the southern states.

About Imperial Cholas (850 – 1279 AD)

- Referred to as Muvendhar in Sangam Literature, it was a major Tamil dynasty alongside **Cheras and Pandyas**.
- **Major Rulers:** Vijayalaya (Founder), Parantaka Chola (Maduraikonda), Rajaraja Chola I (Conquered northern Sri Lanka and Maldives), Rajendra Chola I (Conquered Srivijaya Kingdom, founded Gangaikondacholapuram).
- **Cultural Patronage:** Flourishing of Tamil literature and composition of works such as epic poem "Kalingattupparani" and devotional hymns "Thevarams" by Nayanars.
- **Architecture:** Brihadeeswarar Temple in Thajavur, Airavatesvara Temple in Darasuram and the Gangaikonda Cholapuram Temples.
- **Metal Sculpture:** Solid metal sculptures made through lost wax method using alloy of five metals (copper, silver, gold, tin and lead).

Project 17A Ships



Mahendragiri, the sixth ship of Nilgiri-class (Project 17A) and fourth ship of the class built at Mazagon Dock Shipbuilders Limited (MDSL), was delivered to the Indian Navy.

- Other P17A ships are Dunagiri, Taragiri, Udaygiri, Himgiri, Nilgiri.

About Project 17A

- Project 17A frigates are versatile **multi-mission platforms**, designed by the **Warship Design Bureau (WDB)** and overseen by the Warship Overseeing Team (Mumbai).
- P17A ships are fitted with an advanced weapon and sensor suite as compared to the P17 (Shivalik-class) and include **anti-surface, anti-air, and anti-submarine warfare systems**.
- These ships are configured with **Combined Diesel or Gas (CODOG) propulsion plants**, comprising a diesel engine and a gas turbine.

Provisions for acid attack Survivors



Supreme Court has expanded definition of “acid attack victims” under Rights of Persons with Disabilities Act (RPwD), 2016 by including forcible acid ingestion victims and victims with internal injuries (even without visible disfigurement).

- SC has also suggested a shift in **Burden of Proof** on acid attack accused.
- RPwD Act, 2016 ensures that all PwDs can lead their lives with dignity, without discrimination and with equal opportunities.

Legal provisions for acid attack survivors in India

- **Section 124, Bharatiya Nyaya Sanhita (BNS, 2023):** Acid attack causing injury/deformity is cognizable, and non-bailable offence with punishment up to **10 years to life and fine**.
- **Section 397, Bharatiya Nagrik Suraksha Sanhita (BNSS):** Free, immediate treatment in all hospitals; police intimation mandatory
- **Victim compensation scheme:** Under Sec 396 Bharatiya Nagrik Suraksha Sanhita (BNSS).
- **Prime Minister's National Relief Fund (PMNRF) Assistance:** Up to ₹1 lakh aid and recognised for welfare schemes.
- **Landmark Judgments:**
 - **Laxmi case:** Regulated acid sale
 - **Parivartan Kendra:** Action against illegal suppliers

Pulitzer Prize

Two Indian journalists Anand RK and Suparna Sharma, won the Pulitzer Prize for their work in Illustrated Reporting and Commentary category for exposing cybercrime in India.

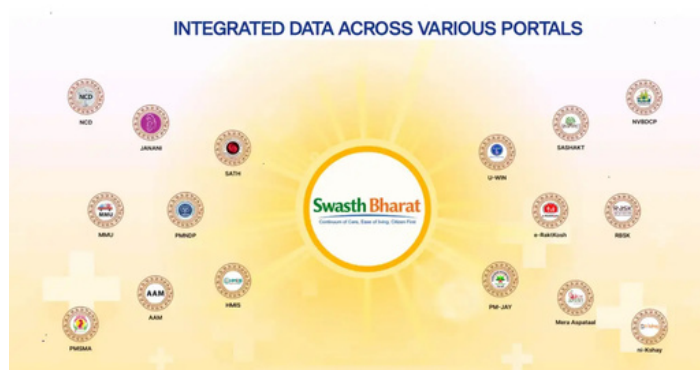


About Pulitzer Prize

- **What is it:** Prize in journalism, literature and music composition, recognising excellence in reporting and storytelling.
- It is the highest journalism awards in the US, awarded annually in 23 categories.
- **Administered by:** Columbia University
- **Established:** 1917 by provisions in the will of **Joseph Pulitzer**, an Hungarian-American newspaper publisher.

Swasth Bharat Portal

Swasth Bharat Portal was launched recently by the Health and Family Welfare Ministry.



Swasth Bharat Portal

- **Nature:** Functions as a **unified digital layer** that integrates existing standalone programme systems via an API-based federated architecture.
- **ABDM-Compliant:** Portal seamlessly integrates with Ayushman Bharat Health Account, Healthcare Professionals Registry and Health Facility Registry enabling secure exchange of interoperable patient health records.
- **Empowering Frontline Workers:** Provides a single interface for ASHAs, ANMs, CHOs, and Medical Officers (MOs), eliminating the need for multiple logins and repetitive data entry.

Ayushman Bharat Digital Mission (ABDM)

- **Objective:** To develop a robust digital backbone to support the integrated digital health infrastructure and bridging gaps among stakeholders in India's healthcare ecosystem.
- **Type:** Central Sector Scheme
- **Tenure:** 5 years
- **Implementing Agency:** National Health Authority (NHA)

Structural deficits in India's healthcare System

Recently, India approved 43 new medical colleges, 20,649 additional MBBS and PG seats for 2025-26. However, rural CHCs still face persistent gaps in public healthcare delivery.

Challenges in Public Healthcare delivery System

- **Acute Shortage of Specialist:** Rural Community Health Centres (CHCs) face nearly 80% specialist vacancies, with only 4,413 specialists available against the requirement of 21,964.
 - Despite addition of 72,627 PG seats across 731 medical colleges since 2014, expansion in medical education has not translated into adequate specialist availability in public healthcare facilities.
- **Weak Health Governance Framework:** Of the 43 newly approved medical colleges for 2025-26, 27 are private institutions with limited accountability towards public health workforce deployment.
- **Reluctance of Doctors to Serve in Rural Areas:** Newly graduated specialists are often unwilling to work in remote and underserved areas.
- **Flawed Budgetary Priorities:** The central health budget heavily prioritizes capital expenditure and building infrastructure rather than functional operations.

Measures required for improving Public Healthcare delivery System

- **Align PG Medical Education with Public Health Needs:** Link postgraduate medical admissions and specialist training with vacancies in CHCs and district hospitals.
 - Aspirant doctors should be required to sign an undertaking to serve in a designated government facility, with priority given to candidates willing to commit to a **10-year service bond** in difficult-area CHCs.
- **Promote Rural Specialist Deployment:** Provide financial incentives, housing, quality schooling and career progression benefits for doctors serving in difficult and remote areas.
- **Adopting the "All or None" Deployment Strategy:** A CHC should either receive the full required team of five specialists or none at all, which distributes the workload better.

Initiatives taken to strengthen Health System

- **Human Resource Development:** E.g., Expansion of AIIMS, medical colleges, and nursing institutions. .
- **Digital Health Reforms:** E.g., Ayushman Bharat Digital Mission for digital health IDs and electronic health records.
- **Affordable Healthcare Initiatives:** E.g., Pradhan Mantri Jan Arogya Yojana (PM-JAY) to reduce out-of-pocket expenditure.
- **Public Health and Preventive Care:** E.g., National Health Mission (NHM) to strengthen rural and urban healthcare systems.
- **Governance and Regulatory Reforms:** E.g., National Medical Commission reforms to improve transparency and quality in medical education.

Ageing and Senior Healthcare in India

India's Ageing Population and Need for Long-Term Senior Care Ageing is a natural process leading to decline in physical and mental capacity and increasing risk of diseases and death.









- It is also associated with life changes such as **retirement, relocation** and **loss of friends or partners**.
- India's elderly population is projected to reach **347 million (~20%) by 2050**, up from **8.6% in 2011**. (UNFPA 2023)

Challenges Associated with Geriatric Healthcare

- **Hospital-Centric Model:** Systems treat individual diseases, while elderly people often suffer from multiple long-term health conditions requiring **continuous and integrated care**.
- **Mental Health & Social Isolation:** Issues like Dementia, Alzheimer's, and depression are often undiagnosed.
 - Preference for nuclear families has increased social isolation and "empty nest syndrome."
- **Financial Insecurity:** High out-of-pocket health expenditure frequently pushes households into **poverty**.
 - 78% of elderly lack pension coverage and 70% are economically dependent.
- **Feminization of Ageing:** Women live longer but often have fewer assets and lower access to healthcare, making them more vulnerable.
- **Others:** Fewer trained geriatricians, Lack of Social Security, Digital Access, Rural-Urban Divide etc.

Way Forward

- **Strengthen Long-Term Care (LTC):** Develop integrated elderly-care systems including **skilled workforce, infrastructure, and financing**.
- **Strengthen Digital Healthcare:** Promote **teleconsultation** and integrated electronic health records under the Ayushman Bharat Digital Mission (ABDM).

SIGNIFICANCE OF GERIATRIC HEALTHCARE			
 <p>IMPROVED QUALITY OF LIFE</p> <p>Encourages dignity, self-reliance, and better wellbeing among elderly citizens. Helps seniors preserve confidence and independence in daily life.</p>	 <p>LOWER HEALTHCARE PRESSURE</p> <p>Timely and regular medical care helps avoid severe complications, minimizes hospital admissions, and lowers emergency healthcare needs.</p>	 <p>MANAGEMENT OF CHRONIC ILLNESSES</p> <p>Assists in the treatment and monitoring of conditions such as diabetes, hypertension, and dementia. Reports indicate that more than 75% of elderly people face chronic health issues, while insurance coverage remains limited (NITI Aayog, 2024).</p>	 <p>SOCIAL INCLUSION & FAMILY ASSISTANCE</p> <p>Builds a caring and supportive atmosphere for older persons and reduces emotional as well as financial stress on families.</p>
MAJOR GOVERNMENT INITIATIVES FOR ELDERLY WELFARE			
 <p>AYUSHMAN BHARAT – PM-JAY</p> <p>Offers health coverage of up to ₹5 lakh annually for around 6 crore senior citizens aged 70 years and above.</p>	 <p>NATIONAL PROGRAMME FOR HEALTH CARE OF THE ELDERLY (NPHCE)</p> <p>Focuses on delivering affordable, accessible, and quality healthcare services tailored to the needs of ageing people.</p>	 <p>SENIOR CARE AGEING GROWTH ENGINE (SAGE) PORTAL</p> <p>Promotes innovation in elderly care by supporting startups and motivating young entrepreneurs to contribute to the silver economy.</p>	 <p>RASHTRIYA VAYOSHRI YOJANA (RVY)</p> <p>Supplies assistive devices and supportive aids to senior citizens affected by age-related disabilities.</p>

JANANI Platform

Recently, Ministry of Health and Family Welfare launched JANANI (Journey of Antenatal, Natal and Neonatal Integrated Care) platform.



About JANANI

- **Service-oriented digital platform** to comprehensively monitor and maintain digital health records of women during reproductive age.
- An **upgraded version** of existing **RCH (Reproductive and Child Health)** portal, creating a **longitudinal health record** by capturing key service delivery events across continuum of care.
- **Key Features:**
 - **Interoperability:** Enabling integration with national platforms like **U-WIN** and **POSHAN**.
 - **Unique Identifiers:** Like **ABHA**, **Aadhaar** (OTP and biometric) and mobile number for registration of beneficiaries.
 - **Others:** **QR-enabled digital Mother and Child Health (MCH) Cards**; **automated alerts** for high-risk pregnancies, **real-time dashboards** for supervisory review, etc.

Chief of Defence Staff (CDS)

The Government has appointed Lieutenant General NS Raja Subramani (Retd) as the next Chief of Defence Staff (CDS).



About CDS

- **Genesis:** The post of CDS was created in 2019 on the recommendations of a Group of Ministers (GoM) in 2001, based on the 1999 K. Subrahmanyam Committee (or Kargil Review Committee) Report.
- **Roles and Responsibilities of CDS:**
 - **Principal Military Adviser to the Raksha Mantri** on all tri-service matters.
 - **Head of Department of Military Affairs (DMA):** As the **ex-officio Secretary**, the CDS oversees **Armed Forces Affairs, Procurement** (excluding capital acquisitions), and **Integration** (promoting "jointness" in training, logistics, etc.).
 - **Permanent Chairman of Chiefs of Staff Committee:** acting as "**first among equals**" to coordinate between the three Service Chiefs.
 - **Strategic Mandates:** Theatre Commands, Nuclear Authority (Military Adviser to the Nuclear Command Authority) and **Policy & Planning**.

Failure of India's Exam Ecosystem



The cancellation of National Testing Agency (NTA) NEET-UG 2026 exam after the paper leak reflects larger concern of failure of Exam Ecosystem in India.

- NTA, established under **Societies Registration Act (1860)** in 2017 by **Ministry of Education**, conducts standardized entrance and recruitment examinations in India.

Reasons for Failure of Exam Ecosystem

- **Unequal Education Standards:** Wide gap between CBSE, State Boards, and International Baccalaureate (IB) creates unequal competition.
- **Corruption and paper leaks:** Scams like the Vyapam scam (Madhya Pradesh) undermine trust in examinations.
- **Over-Centralization of Examinations:** “One Nation, One Exam” approach ignores regional and educational diversity creating excessive pressure on a single test.
- **Weak cybersecurity:** Poor digital security exposes online question papers to leaks and unauthorized access.
- **Cultural:** In some parts of India, there's a degree of social acceptance of cheating in exams. E.g., Incidents of mass cheating reported from Bihar.

Ethical Aspects affected due to failure of exam system

- **Fairness:** Equal and unbiased opportunity is compromised raising question on **Integrity and Transparency, accountability** of exam process.
- **Violates deontological ethics:** Students have adopted unfair means (cheating) for favorable ends (results).
- **Virtue Ethics:** Virtues of truth, trust, and excellence of character do not support deception or dishonesty.
- **Equity:** Disadvantaged students affected more impacting their liberty and right to access.

Legal Provisions related to Exam Ecosystem

- **Public Examination (Prevention of Unfair Means) Act, 2024:** Aimed at curbing leaks, malpractices as well as organized malpractices in recruitment examinations.
 - **Public Examination (Prevention of Unfair Means) Rules, 2024** were published under the act which mandate, Venue-in-charge must file FIRs in cases of exam malpractice and Committees will probe involvement of management or service providers.

Dam safety framework in India



India enhances dam safety framework through rehabilitation, technological upgrades, and legal reforms. India is undertaking one of the world's largest dam rehabilitation and safety modernisation programmes focused on strengthening ageing water infrastructure.

Status of Dams in India

- India has the **world's third-largest dam network** with 6,628 specified dams after the United States and China.
- Around **98.5%** of these dams are owned by the State Government.
- **Maharashtra** has the highest number of specified dams, followed by Madhya Pradesh, and Gujarat.

Key issues of Dam safety in India

- **Ageing:** About 26% (1,681 dams) of these dams are more than 50 years old.
- **Sedimentation:** Reservoirs have lost an average of 19 % of their gross storage capacity due to sedimentation.
- **Seismic vulnerability:** E.g. The earthquake in Bhuj (Gujarat) in 2001, led to liquefaction in the foundation of Chang Dam.
- **Vulnerability to Glacial Lake Outburst:** E.g., in 2023, Chungthang Dam (Sikkim) was washed away during flash floods caused by a glacial lake outburst.
- **Other:** Changing hydrological patterns and increasing climate variability.

Initiative taken to ensure Dams Safety in India

- **Dam Rehabilitation & Improvement Programme (DRIP):** It is a multi-phase programme started in 2012 with the help of World bank in 3 phases to focus on structural rehabilitation, dam safety inspections, and emergency action planning.
- **Dam Safety Act, 2021:** It provides for surveillance, inspection, operation and maintenance of specified dams.
- The Act created a 4-tier institutional structure: National Committee on Dam Safety (NCDS), the National Dam Safety Authority (NDSA), State Committees on Dam Safety and State Dam Safety Organisations (SDSOs).
- **Others:** Dam Health and Rehabilitation Monitoring Application (DHARMA) platform, Mandatory Inspections to carry out pre-monsoon and post-monsoon inspections of all specified dams etc.

Supreme Court allows Euthanasia of Rabid, Dangerous Dogs

SC refused to recall its November 2025 directions on complete removal of stray dogs from public places (such as schools, hospitals, railway stations, and airports).

- The Court clarified that **dogs occupying these institutional premises cannot be categorized as "street dogs" or "community dogs" under the Animal Birth Control (ABC) Rules, 2023**, and therefore do not have an absolute right to occupy them.
- SC also observed that **Article 21** of the Constitution encompasses the **right to access public places without the constant fear of physical attacks or dog bites**.

Major Directions Issued by the Court

- **Euthanasia Permitted:** Authorities can legally euthanize **rabid or dangerously aggressive dogs** to protect human lives.
- **Official Protection:** **Local body officials** performing duties are shielded from FIRs/criminal complaints.
- **Highway Safety:** NHAI directed to clear highways of stray cattle menace.
- **Enforce AWBI Rules:** States/UTs must strictly enforce the Animal Welfare Board of India Rules.
- **ABC Centres:** At least one Animal Birth Control (ABC) centre must be established in each district.
- **Anti-Rabies Supply:** Adequate anti-rabies vaccines and immunoglobulins must be ensured.
- **Judicial Oversight:** High Courts will monitor compliance through suo motu cases.

Ethical issues of allowing Euthanasia of stray dogs

- **Compassion vs. Mercy Killing:** It risks being misused as a convenient population-control tool rather than a humane last resort.
- **Animal Rights vs. State Authority:** The State's duty to protect citizens may conflict with animals' right to life and freedom from cruel treatment.
 - SC, in **Jallikattu Case 2014**, has interpreted the **right to life and liberty (Article 21)** as **extending to animals as well**.
- **Risk of Arbitrary Classification:** Deciding which dogs are "dangerous" or "aggressive" creates ethical concerns of bias, misuse of authority, and wrongful killing.

Alternatives to Euthanasia

- **Global Best Practice:** "RandAgiamo" Project of Italy offers training, socialization and advertising of adult shelter dogs.
- **Mandatory Registration and Responsible ownership:** Following World Organisation for Animal Health Terrestrial Animal Health Code.