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POLITY AND GOVERNANCE

1. UNIFORM CIVIL CODE

Context: The debate over the **Uniform Civil Code (UCC)** has gained renewed attention as UCC Bills passed by **Assam, Gujarat and Madhya Pradesh** await Presidential assent, while **Uttarakhand has implemented a UCC since January 2025**. These developments indicate growing efforts to create a common civil-law framework covering marriage, divorce, inheritance and adoption.

Status of Personal Laws in India

- **Hindu, Sikh, Buddhist & Jain:** Broadly codified under **Hindu Code Bills, 1955–56**—marriage, succession, guardianship, adoption, maintenance; **Anand Marriage Act, 1909** (amended 2012) for Sikh marriages.
- **Muslim:** Largely **uncodified/partially codified**, based on **Shariat**; key laws—**Shariat Application Act, 1937** and **Dissolution of Muslim Marriages Act, 1939**.
- **Christian & Parsi:** Governed by specific laws—**Indian Christian Marriage Act, 1872**; **Indian Divorce Act, 1869**; **Parsi Marriage & Divorce Act, 1936**.
- **Tribal & Customary:** Customary practices protected through the **Fifth & Sixth Schedules** and **Article 371**, subject to constitutional/legal limits.
- **Secular Alternative:** **Special Marriage Act, 1954** enables marriage outside personal-law frameworks.

Arguments Supporting UCC

- **National Integration:** A “**One Nation, One Law**” approach could establish common civil standards, reduce religion-based legal differences and strengthen a shared civic identity.
- **Gender Justice and Equality:** A common framework could provide equal rights in **marriage, divorce, inheritance and guardianship**, thereby strengthening the constitutional guarantees under **Articles 14, 15 and 21**.
- **Constitutional Secularism:** Basing civil rights on **citizenship rather than religion** could reinforce the secular character of the Constitution.
- **International Commitments:** India is a party to the **ICCPR, 1966** and **CEDAW, 1979**. A UCC can support commitments relating to **equality, non-discrimination and gender justice**.



Arguments Opposing UCC

- **Erosion of Pluralism:** A uniform legal framework could affect India's **religious and cultural diversity**, raising concerns related to **Articles 25 and 29**.
- **Minority Concerns:** Without adequate consensus, the UCC could create fears of **majoritarian imposition** among minority communities and their traditions.
- **Tribal and Customary Practices:** A common code may conflict with **tribal customs**, particularly in the **North-East and Fifth Schedule areas**. Some OBC communities, including the **Kurmis**, have also expressed concerns about their inclusion, highlighting the need to protect community-specific customs and identities.
- **Uniformity Does Not Ensure Equality:** A uniform law may not automatically produce substantive equality. Discriminatory provisions could instead be addressed through **reforms within existing personal laws**.

Important Supreme Court Judgments on UCC

- **Mohd. Ahmed Khan v. Shah Bano Begum (1985):** Upheld Muslim woman's maintenance under Section 125 CrPC; stressed Article 44/UCC.
- **Sarla Mudgal v. Union of India (1995):** Conversion to Islam cannot justify second marriage without dissolving the first; checked personal-law misuse.
- **Daniel Latifi v. Union of India (2001):** Upheld Muslim Women (Protection of Rights on Divorce) Act, 1986; ensured fair provision extending beyond Iddat.
- **John Vallamattom v. Union of India (2003):** Struck down Section 118, Indian Succession Act, 1925 under Article 14; linked UCC with national integration.
- **Shayara Bano v. Union of India (2017):** Invalidated Talaq-e-Biddat (instant triple talaq); reinforced constitutional scrutiny of personal-law practices.
- **Jose Paulo Coutinho v. Maria Luiza Valentina Pereira (2019):** Cited Goa's uniform civil code as an example; highlighted wider UCC implementation.

Way Forward

- **Gender Justice:** Reform personal laws to ensure **equal rights for women** in marriage, divorce, maintenance and inheritance.
- **Constitutional Morality:** 2024 **Section 6A judgment** reaffirmed that **Articles 25 & 29** operate within **equality and constitutional morality**; discriminatory practices cannot claim automatic protection.
- **Voluntary UCC:** B.R. Ambedkar suggested an initially **voluntary UCC**, applicable to citizens choosing to opt in.
- **Equality Within Communities:** 21st **Law Commission (2018)** called blanket UCC "**neither necessary nor desirable at this stage**"; prioritise removing discrimination in **custody, adoption, succession and family laws**.

Conclusion: A balanced UCC framework should harmonise **gender justice, constitutional morality and legal uniformity** while respecting India's pluralism. Inclusive consultation and gradual reform can build trust and strengthen **constitutional fraternity**.

Test Your Knowledge	
<p>Prelims Corner</p> <p>UPSC Prelims Question With reference to the Uniform Civil Code (UCC) in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. Article 44 of the Constitution directs the State to endeavour to secure a Uniform Civil Code throughout India. 2. The Directive Principles of State Policy are enforceable by courts. 3. The Fifth and Sixth Schedules provide constitutional safeguards for certain tribal customary practices. 4. The Special Marriage Act, 1954 provides a secular legal framework for marriage outside personal laws. <p>Which of the statements given above are correct?</p> <p>(a) 1, 2 and 3 only (b) 1, 3 and 4 only (c) 2 and 4 only (d) 1, 2, 3 and 4</p> <p>Answer: (b) 1, 3 and 4 only</p>	<p>Mains Corner</p> <p>The debate over the Uniform Civil Code (UCC) reflects the constitutional challenge of balancing equality and gender justice with religious freedom, cultural diversity and customary laws. Discuss.</p> <p>(Answer in 150 words) 10 Marks</p>

2. ROLE OF COMMUNITY CADRES IN RURAL DEVELOPMENT

Context: A large network of trained grassroots workers is improving the last-mile delivery of government schemes by linking rural communities with services.

Community Cadres And Last-Mile Delivery

- **Large Grassroots Network:** More than 9 lakh Community Resource Persons (CRPs), 10.40 lakh ASHAs, 10.58 lakh Anganwadi Workers (AWWs), Auxiliary Nurse Midwives (ANMs) and other frontline workers support rural service delivery across sectors.
- **Sector-Specific Support:** Nearly 4.08 lakh livelihood CRPs, including Krishi Sakhis, Pashu Sakhis, Matsya Sakhis and Van Sakhis, support agriculture and allied activities. Other CRPs work on banking, insurance, financial literacy, gender awareness and community development.
- **Linking Schemes with Households:** Community cadres turn coordination among government schemes into better household outcomes by ensuring integrated services at the local level.
- **Changing Role of Frontline Workers:** Cadres now work across sectors. For example, ASHAs support maternal and child health while also promoting nutrition, sanitation and action against violence against women.
- **Promoting Social Inclusion:** Under NRLM, Gender CRPs address gender-based violence, social exclusion and inequality, supporting more equitable development.

Community Cadres and Rural Livelihoods

- **Community Resource Persons (CRPs):** 9 lakh+ CRPs support agriculture, livestock, fisheries, enterprises, banking, financial literacy, insurance and social development.
- **Farm Livelihoods:** 3 lakh+ livelihood CRPs supported **4.62 crore+ Mahila Kisans** by June 2025 through improved farming, livestock practices, productivity and services.
- **Deendayal Antyodaya Yojana–National Rural Livelihoods Mission (DAY-NRLM):** Community-led platform enabling **livelihoods, financial inclusion, social development and scheme access**.
- **Women-led Institutions:** **10 crore+ rural households** mobilised into **92 lakh Self-Help Groups (SHGs)**, supported by Village Organisations and Cluster-Level Federations.
- **Start-up Village Entrepreneurship Programme (SVEP):** Supported **4.32 lakh rural enterprises** by June 2026, strengthening the village entrepreneurship ecosystem.



Health and Nutrition

- Role of ASHAs:** ASHAs spread health awareness, support national health programmes and address local health needs through community-based interventions.
- Nutrition Support:** AWWs identify Severe Acute Malnutrition (SAM) and Moderate Acute Malnutrition (MAM) cases, provide supplementary nutrition and promote awareness about child feeding, breast-feeding, hygiene and sanitation.
- Poshan Bhi Padhai Bhi:** The initiative seeks to improve Early Childhood Care and Education (ECCE) through better Anganwadi infrastructure, play-based learning materials and AWW capacity building.

Sanitation and Hygiene

- Community-Based Workforce:** Swachhagrahis include ASHA workers, ANMs, AWWs, water linemen, pump operators and village volunteers, broadening community participation.
- Role of Swachhagrahis:** Under the Swachh Bharat Mission (Grameen), Swachhagrahis promote sanitation awareness, hygiene and sustained behavioural change in rural areas.

Local Cadres for Water Security

- Village Water & Sanitation Committees (VWSCs)/Pani Samitis:** 5.33 lakh+ manage village water security through **funds, budgeting, user charges, maintenance and water-quality monitoring**.
- Community Water Governance:** Under **Jal Jeevan Mission (JJM)** and **73rd Constitutional Amendment**, Gram Panchayats/VWSCs undertake **village-level planning, implementation and maintenance**.
- Inclusive Representation:** Gram Sabha-formed VWSCs ensure **≥50% women**, with Panchayat members, **SC/STs and vulnerable households** represented.
- Nal Jal Mitra Programme:** Trains local cadres in **plumbing, electrical work and pump operation** for minor repairs and rural water-system maintenance.

Community Support for Rural Housing

- Awaas Mitras:** Under Pradhan Mantri Awaas Yojana-Gramin (PMAY-G), Awaas Mitras support beneficiary identification, documentation, construction monitoring and scheme implementation.
- Support Until Completion:** Every sanctioned house is linked to village-level workers such as Awaas Mitras, Awaas Sahayaks, Gram Rozgar Sahayaks or SHG members to help ensure timely completion.

- **Housing Goal:** Through this community-based approach, PMAY-G aims to build 4.95 crore houses by March 2029, improving access to safe and secure rural housing.

Conclusion: Community cadres can transform rural governance by deepening community ownership, service convergence and local capacity. Sustained skilling and grassroots participation can make development more inclusive, responsive and resilient.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>With reference to community cadres in rural development, consider the following statements:</p> <ol style="list-style-type: none"> 1. Bank Sakhis facilitate access to institutional credit for Self-Help Groups under DAY-NRLM. 2. VWSCs/Pani Samitis are involved in village-level planning, maintenance and monitoring of rural water supply systems. 3. Awaas Mitras under PMAY-G are primarily responsible for providing doorstep banking services to rural households. 4. Krishi Sakhis and Pashu Sakhis function as community-based resource persons supporting farm and allied livelihood activities. <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 1, 2 and 4 only (c) 2, 3 and 4 only (d) 1, 2, 3 and 4</p> <p>Answer: (b) 1, 2 and 4 only</p>	<p>Q. Community cadres can transform rural development from a scheme-centric approach into a community-led model of last-mile governance. Examine their role in improving the delivery of livelihoods, financial inclusion and basic social services in rural India.</p> <p>(15 Marks, 250 Words)</p>

3. AUTONOMY OF THE ELECTION COMMISSION OF INDIA (ECI)

Context: The Election Commission of India (ECI) faces renewed scrutiny over its **institutional independence and functioning**.

Key Issues Concerning the ECI

Appointment Law and Institutional Independence

- **Article 324** places the **superintendence, direction and control of elections** with the ECI. It provides that the President appoints the CEC and other ECs, subject to any law made by Parliament.
- For more than seven decades, Parliament had not enacted a specific appointment law, leaving the process largely under the control of the **Union Executive**.
- The **CEC** can be removed only in a manner and on grounds similar to those applicable to a **Supreme Court judge**, while other ECs can be removed only on the **CEC's recommendation**.
- In **Anoop Baranwal v. Union of India (2023)**, a five-judge Constitution Bench held that, until Parliament enacted a law, the CEC and ECs would be appointed on the recommendation of a committee comprising the **Prime Minister, Leader of Opposition (LoP) in the Lok Sabha and CJI**.
- Parliament replaced this interim arrangement through the **2023 Act**, creating a selection committee consisting of:
 - **Prime Minister** – Chairperson
 - **Leader of Opposition in the Lok Sabha** – Member
 - **Union Cabinet Minister nominated by the Prime Minister** – Member
- The removal of the **CJI** from the panel and replacement with a Cabinet Minister is a major concern raised about the law.

- Since the Prime Minister and nominated Cabinet Minister form a **2:1 majority**, critics argue that the arrangement gives the Executive decisive influence, while reducing the LoP's role.
- Critics also contend that this structure could affect perceptions of the ECI's independence and weaken safeguards for **free and fair elections**.
- During the recent split verdict, the central judicial concern was that the ECI must not only be independent but must also **appear independent**.
- Critics argue that the 2023 Act may not satisfy this "**perception test**", potentially affecting public confidence in the Commission's neutrality.

Internal Functioning and Procedural Concerns

- The ECI is a **multi-member collegial body** consisting of the CEC and two ECs. Under **Article 324**, decisions may be taken by unanimity or majority.
- Reports of repeated dissent over decisions allegedly taken without the knowledge of all Commissioners have raised concerns about **transparency and collegiality**.
- During the **Special Intensive Revision (SIR)**, allegations emerged that changes to **Form 6**, used for new voter registration, were made through administrative directions rather than the prescribed statutory process.
- Form 6 is a statutory form under the **Registration of Electors Rules, 1960**. Under **Section 28 of the Representation of the People Act, 1950**, amendments to these rules and forms are within the Central Government's authority through an **Official Gazette notification**, in consultation with the ECI. Therefore, critics argue that changes through administrative orders or portal updates lack legal validity.
- Dissenting Election Commissioners have also raised concerns about the **centralisation of electoral-roll IT systems**, including ERONet, in Delhi.
- They argued that restricting access for State-level officials could weaken the **decentralised management of electoral rolls**.
- Reports of approximately **13 crore voter deletions nationwide during the SIR** have raised concerns despite the ECI's guiding principle of "**no voter to be left behind.**"
- Such large-scale deletions have prompted questions about the transparency and accuracy of verification procedures and the possible **disenfranchisement of eligible voters**.
- Continued internal dissent and procedural concerns could affect the ECI's **transparency, accountability, institutional coherence and public credibility**.



Steps to Strengthen the ECI's Institutional Integrity

- **Make the Selection Process More Broad-Based:** The appointment mechanism should reduce **executive dominance** and strengthen public confidence in the ECI's independence. The **Dinesh Goswami Committee (1990)**, **Law Commission of India's 255th Report (2015)** and the **Anoop Baranwal judgment (2023)** support a more balanced or consensus-oriented selection process.
- **Strengthen Security of Tenure for ECs:** The **removal protection** available to Election Commissioners should be brought on par with that of the CEC. This can support **independent decision-making and fearless dissent**.
- **Regulate Post-Retirement Appointments:** A **cooling-off period or restrictions on post-retirement executive appointments** could reduce concerns regarding conflicts of interest and possible *quid pro quo* arrangements.
- **Institutionalise Internal Decision-Making:** Clear **Transaction of Business Rules** should require major decisions to be circulated among and approved by all Commissioners. This would reinforce **collegiality, transparency and accountability**.
- **Ensure Compliance with Statutory Procedures:** Changes involving electoral forms and procedures under the **Representation of the People Act, 1950** and **Registration of Electors Rules, 1960** should undergo proper **legal scrutiny and formal notification**, rather than being implemented solely through administrative directions.
- **Preserve Decentralised Electoral Management:** Technological systems such as **ERONet** should facilitate, rather than centralise, electoral administration. State and district authorities should retain sufficient **access, oversight and operational autonomy**.
- **Give ECI Expenditure Charged Status:** Unlike the **Supreme Court, Comptroller and Auditor General (CAG)**, and **Union Public Service Commission (UPSC)**, the ECI's administrative expenditure is currently **"voted" by Parliament** rather than **"charged" to the Consolidated Fund of India**. Giving ECI expenditure **charged status** through the Union Budget could protect the Commission from financial controls or budgetary pressures from the Union Executive.
- **Establish a Permanent Independent Secretariat:** Following the institutional models of **Article 98** relating to the Parliament Secretariat and **Article 146** concerning Supreme Court officers and servants, the ECI should have an **independent cadre and service conditions** for its officers and staff. Reducing reliance on deputation from Union civil services would strengthen **institutional memory** and reduce the operational staff's dependence on executive reporting structures.

Conclusion: A credible ECI requires not only legal autonomy but also visible impartiality, procedural transparency and institutional resilience. Strengthening these safeguards can deepen electoral trust and democratic legitimacy.

4. LEGISLATIVE PRIVILEGES: BALANCING LEGISLATIVE POWERS AND CONSTITUTIONAL RIGHTS

Context: A seven-judge Supreme Court Constitution Bench closed *N. Ravi and Others v. Speaker, Legislative Assembly, Chennai and Others* as "infructuous", leaving questions concerning legislative privileges and freedom of speech open.



Privilege Notice and Committee

- **Privilege Notice:** Formal complaint by a legislator against alleged violations of privilege, immunity or House dignity, including misleading statements, withheld information or derogatory remarks.
- **Committee of Privileges:** Standing, quasi-judicial committee examining breaches and recommending action.
 - **Lok Sabha:** 15 members nominated by the Speaker.
 - **Rajya Sabha:** 10 members nominated by the Chairman.
 - **Powers:** Examine facts and recommend reprimand, unconditional apology, suspension or expulsion, subject to applicable constitutional limits.

Limits on Legislative Freedom

- **Article 118:** Parliamentary rules regulate legislative proceedings and speech.
- **Article 121:** Prohibits discussion of Supreme Court or High Court judges' conduct, except during consideration of a removal motion.

Important Supreme Court Judgments

- **Sita Soren v. Union of India (2024):** Overruled P.V. Narasimha Rao (1998); legislators have no immunity from criminal prosecution for bribery linked to legislative acts.
- **Raja Ram Pal v. Speaker, Lok Sabha (2007):** Privileges, including expulsion, are subject to judicial review.
- **M.S.M. Sharma v. Sri Krishna Sinha (1959):** Held legislative privilege under Article 194(3) prevailed over freedom of speech under Article 19(1)(a).
- **Amarinder Singh v. Special Committee, Punjab Vidhan Sabha (2010):** Privileges cannot punish past executive actions unrelated to House functioning.
- **Special Reference No. 1 of 1964 (Keshav Singh Case):** Established judicial review of legislative penal actions; fundamental rights do not automatically yield to privileges.

- **Alagaapuram R. Mohanraj v. Tamil Nadu Legislative Assembly (2016):** Privileges protect House functioning, not the personal reputation of political leaders or parties.

Major Concerns

- **Free Speech:** Uncodified privileges may conflict with Article 19(1)(a), including press freedom, when used against critics and journalists.
- **Personal Liberty:** Imprisonment for privilege violations may infringe Article 21 and due process.
- **Punitive Misuse:** A protective shield may become a weapon against political opponents, criticism and scrutiny.
- **Press Freedom:** Proceedings against investigative journalism create a chilling effect and weaken democratic accountability.
- **Constitutional Supremacy:** Unlike the United Kingdom's parliamentary sovereignty, India follows constitutional supremacy; privileges remain subject to the Constitution and fundamental rights.

Way Forward

- **Codification:** Clearly define privileges under Articles 105 and 194 to prevent arbitrary exercise.
- **Harmonious Construction:** Balance legislative dignity and autonomy with free speech and investigative journalism.
- **Judicial Oversight:** Preserve internal legislative autonomy while subjecting punitive measures affecting fundamental rights to judicial review.

Conclusion: Codified safeguards, constitutional supremacy and judicial oversight must balance legislative autonomy with free speech, personal liberty, rule of law and democratic accountability.



Test Your Knowledge




Prelims Corner

Consider the following statements regarding legislative privileges in India:

1. Article 105 deals with the privileges of Parliament, while Article 194 deals with those of State Legislatures.
2. Parliamentary privileges are absolute and cannot be subjected to judicial review.
3. The Committee of Privileges is a Standing Committee of Parliament.

Which of the statements given above is/are correct?

A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

Answer: B. 1 and 3 only


Mains Corner

Q. Legislative privileges are essential for the effective functioning of legislatures, but their uncodified nature can create tensions with fundamental rights. Discuss the need to balance legislative privileges with constitutional supremacy and judicial review.

(15 marks, 250 words)

5. CENTENARY OF THE UNION PUBLIC SERVICE COMMISSION (UPSC)

Context: UPSC completed 100 years on 1 October 2026, marking a century of merit-based public-service recruitment.

Important Facts

- **Civil Services Day:** Observed on **21 April**, commemorating Sardar Vallabhbhai Patel's 1947 address to civil-service probationers at Metcalfe House, where he described civil services as the "steel frame of India".
- **Dholpur House:** Built in 1920 by Maharaja Rana Udaybhanu Singh of Dholpur; became UPSC headquarters in 1952.

- **Constituent Assembly:** Public Service Commission provisions were initially numbered Articles 284 and 285 before becoming Articles 315 to 323.
- **UPSC Museum:** Established on **11 November 2016**, documenting institutional history and offering a 360-degree virtual tour.



Present Issues with UPSC

- **Examination Security:** Paper leaks, impersonation and proxy candidates necessitate biometric verification, encrypted paper distribution and independent security audits.
- **Prolonged Recruitment Cycle:** Multiple examination stages and departmental formalities delay appointments, increasing candidate uncertainty and administrative vacancies.
- **Socioeconomic Inequality:** Expensive coaching, repeated attempts and urban resource concentration disadvantage rural, economically weaker and first-generation aspirants.
- **Assessment Limitations:** Conventional examinations may inadequately assess ethical judgement, emotional intelligence, leadership and practical administrative problem-solving.
- **Evaluation and Accessibility:** Optional-subject disparities, translation inconsistencies and technology-related exclusion raise concerns about fairness and equal opportunity.

Way Forward

- **Shorten Examination Cycle:** Compress Preliminary, Main and interview schedules to reduce recruitment delays and prolonged uncertainty for candidates.
- **Strengthen Examination Security:** Combine encrypted question papers, biometric verification, centre-level audits and time-bound investigations into examination irregularities.
- **Improve Assessment Quality:** Incorporate structured situational assessments to evaluate integrity, empathy, leadership and public-service orientation alongside academic knowledge.
- **Ensure Fair Evaluation:** Standardise examiner training, anonymised digital evaluation, moderation protocols and translation quality across languages and optional subjects.
- **Enhance Transparency and Inclusion:** Publish recruitment-timeline dashboards, accessible practice materials and clear grievance procedures for candidates with disabilities and authentication failures.

Important Committee Recommendations

- **Kothari Committee (1976):** Recommended a common competitive examination framework, influencing the integrated Civil Services Examination structure.
- **Satish Chandra Committee (1989):** Recommended an essay paper and strengthened personality assessment to evaluate candidates beyond conventional academic knowledge.
- **Second Administrative Reforms Commission (2008):** Recommended compressing the examination cycle to reduce delays between Preliminary, Main and subsequent stages.
- **Second ARC—Recruitment Standards:** Emphasised transparent recruitment, open competition and minimising discretion to prevent favouritism, nepotism and corruption.
- **B.S. Baswan Committee (2016):** B.S. Baswan Committee (2016): Recommended reducing the upper age limit and number of attempts for Civil Services Examination candidates, with phased implementation. It also examined examination structure and eligibility criteria to improve recruitment efficiency and align candidates' age profiles with administrative career requirements..

Conclusion: UPSC's next century requires transparent recruitment, technological modernisation and inclusivity to strengthen constitutional integrity, administrative excellence and citizen-centric governance.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>Question: With reference to the Union Public Service Commission (UPSC), consider the following statements:</p> <ol style="list-style-type: none"> 1. Article 315 provides for Public Service Commissions for the Union and the States. 2. The expenses of the UPSC are charged on the Consolidated Fund of India. 3. The President can remove a UPSC member only after an inquiry by the Supreme Court in every case. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 1 and 3 only (c) 2 and 3 only (d) 1, 2 and 3</p> <p>Answer: (a) 1 and 2 only</p>	<p>"Q. Maritime insurance is crucial for safeguarding India's trade and energy security amid growing geopolitical uncertainties." Examine the significance of the Bharat Maritime Insurance Pool (BMIP) in strengthening India's maritime resilience and strategic autonomy. (15 marks, 250 words)</p>

6. LOTTERY REGULATION IN INDIA

Context: Blanket lottery bans may divert demand towards illegal lotteries, matka, satta and offshore betting, while reducing State revenue and vendor livelihoods. The debate centres on strict regulation versus complete prohibition.

Constitutional and Legal Framework

- **State List, Entry 62:** States can tax betting, gambling and lotteries.
- **Union List, Entry 40:** Parliament legislates on lotteries organised by the Union or State governments.
- **State List, Entry 34:** States regulate betting and gambling.
- **Lotteries (Regulation) Act, 1998:** Defines lotteries as prize schemes based on chance; prescribes conditions for State-run lotteries, permits States to prohibit lotteries organised by other States and empowers the Union Government to prohibit non-compliant lotteries.
- **Lotteries (Regulation) Rules, 2010:** Regulate online lotteries through software security requirements, restrictions on hybrid paper-online formats and unauthorised online sales. Punjab and Nagaland have restricted online and WhatsApp-based lottery sales.

Consequences of the Existing Framework

- **Enforcement gaps:** Destination States struggle to monitor external lottery agents and draws.
- **Complete prohibition:** Tamil Nadu (2003) and Karnataka (2007) banned lotteries to prevent predatory external operators, sacrificing potential revenue and welfare benefits.
- **Limited participation:** As of 2023, only nine States, including Kerala, Maharashtra, Goa, Punjab and West Bengal, operated lotteries.

Major Concerns

- **Illegal gambling:** Prohibition does not eliminate demand; it may divert players towards matka, satta, single-digit rackets and offshore betting lacking age verification, audits and fraud safeguards.
- **Vulnerable households:** Instant-win games, rapid draws and misleading jackpot advertisements can encourage compulsive gambling, loss-chasing and household debt, disproportionately affecting low-income groups.
- **Revenue and welfare losses:** Bans reduce lottery revenue and potential GST collections.
- **Livelihoods:** Legal paper lotteries provide decentralised employment to lakhs of vendors, including persons with disabilities, widows and low-income groups.
- **Unequal risk regulation:** Critics contrast lottery restrictions with regulated intraday trading and Futures and Options (F&O) and crypto-asset trading. Securities and Exchange Board of India (SEBI) data indicate that nearly nine in ten individual F&O traders incur net losses, raising questions about risk-based consumer protection.
- **Advertising gaps:** The Advertising Standards Council of India (ASCI) is a non-statutory self-regulatory body; its code lacks the legal force of statutory regulations.

International and Indian Models

- **Global practice:** Nearly 80% of countries reportedly permit regulated lotteries rather than imposing complete bans.
- **State-led operations:** Over 70% of jurisdictions reportedly use State-owned or statutory lottery operators, limiting private concessionaire capture. Private firms mainly provide logistics and information technology services.
- **Inter-State cooperation:** The United States, Canada and Germany use voluntary arrangements for pooling prizes, technical systems and compliance while preserving State authority.
- **Kerala model:**
 - **State supervision:** Departmental lottery draws reduce reliance on private concessionaires.



- **Welfare financing:** Gross proceeds exceeded ₹2,880 crore in financial year 2023–24, supporting the Karunya Benevolent Fund and healthcare subsidies.
- **Inclusive distribution:** Registered street vendors and persons with disabilities receive distribution opportunities.

Measures for Accountable Regulation

- **Amend Section 5:** Permit States to exclude external lotteries even while operating their own, provided restrictions apply uniformly to all external operators.
- **Independent oversight:** Establish statutory State Lottery Authorities separate from operating departments; mandate third-party cryptographic audits of software, Random Number Generators (RNGs) and draw machines.
- **Consumer safeguards:** Introduce daily and monthly purchase limits, prohibit credit-based sales and misleading odds, and restrict rapid-draw and instant-scratch formats.
- **Digital enforcement:** Create a specialised task force involving the Ministry of Electronics and Information Technology (MeitY) and Financial Intelligence Unit–India (FIU-IND) to block illegal offshore betting applications and freeze domestic payment channels facilitating untaxed gambling.

Conclusion: A balanced framework should combine independent oversight, consumer protection and digital enforcement with safeguards for State revenue and vulnerable livelihoods, rather than relying solely on blanket prohibition.

Test Your Knowledge

<div style="display: flex; align-items: center;"> Prelims Corner </div>	<div style="display: flex; align-items: center;"> Mains Corner </div>
<p>Consider the following statements regarding lottery regulation in India:</p> <ol style="list-style-type: none"> 1. Parliament has exclusive legislative competence over lotteries organised by the Government of India or a State. 2. States have legislative competence over betting and gambling. 3. A State can prohibit lotteries organised by other States while continuing to run its own lottery. <p>Which of the statements given above is/are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: A. 1 and 2 only</p>	<p>Q. Regulation rather than prohibition may offer a more balanced approach to lottery governance in India. Examine this proposition in the light of constitutional provisions, judicial jurisprudence, socio-economic concerns and the need for consumer protection.</p> <p>(15 marks, 250 words)</p>

7. POINTERS FOR PRELIMS

7.1. SC INVALIDATES MAHARASHTRA'S METHANOL RULES

Context: SC struck down Rules 18A & 18B, Maharashtra Poisons Rules, 1972, requiring colourant/bitterant in industrial methanol; held unconstitutional and disproportionate.

Maharashtra Poisons Rules, 1972

- **Methanol:** Highly toxic industrial chemical used in **paints, resins, pharmaceuticals, disinfectants**.

- **2011 Amendment:** Post-1991 **Mumbai hooch tragedy**, Rules 18A–18B introduced to prevent methanol diversion into illicit liquor.
- **Rule 18A(2):** Non-drug-use methanol required **methylenecarmine + denatonium saccharide** (colourant + bitterant).
- **Rules 18A(1) & 18B:** Form A licence required for sale/possession; unauthorised methanol liable to confiscation.

Supreme Court's Key Findings

- **Article 14:** Rules were manifestly arbitrary, lacking rational nexus with preventing hooch deaths.
- **Article 19(1)(g):** Mandatory denaturing imposed a **continuing, unreasonable burden** and could impair legitimate industrial products.
- **Proportionality:** Under *K.S. Puttaswamy (2017)*, preventing hooch deaths is legitimate, but the measure was **neither suitable nor necessary**.
- **Core issue:** Colouring/bitterness does not address **pilferage, corruption and illegal diversion**, key causes of methanol-related deaths.

7.2. WAVES OTT & MyWAVES

- Context: **WAVES ecosystem:** Prasar Bharati's shift from conventional broadcasting to an integrated **digital public-service platform** covering TV, radio, education, archives, publications and citizen-generated content.
- WAVES OTT: **Launched on 20 Nov 2024** at the **55th IFFI, Goa**; Prasar Bharati's public-service OTT platform providing **live TV/radio, on-demand content, education, news, culture and archives**.
- **Key integrations:** PM eVidya, Yojana, Kuruksheetra, e-books, Prasar Bharati archives, games and **ONDC-linked shopping**; **Pay-Per-View Content Sourcing Policy** facilitates content submission by producers/right holders.
- MyWAVES: **Launched on 23 March 2026**; transforms WAVES from a content-consumption platform into a **citizen-driven content-creation ecosystem**, enabling users to create, upload and share **short/vertical videos and episodic content** in Indian languages.
- **Gems of India Challenge:** Launched in the **pilot on 21 July 2026**; submissions **1-31 August 2026** through MyWAVES; showcases district-level **culture, heritage, tourism, folk traditions, handicrafts, cuisine and local achievements**.
- **Prasar Bharati:** India's public-service broadcaster, established under the **Prasar Bharati Act, 1990** and operational since **1997**;

Doordarshan and Akashvani (All India Radio) are its principal broadcasting arms.

7.3. ROLE OF ECI IN PARTY DISPUTES AND SYMBOL ALLOCATION

Context: The Election Commission of India (ECI) froze the All India Trinamool Congress name and reserved symbol amid rival factional claims ahead of West Bengal Assembly bypolls.

ECI's Powers and Legal Basis

- **Article 324:** Constitutional basis of ECI's electoral authority.
- **Representation of the People Act, 1951:** Legislative framework governing elections and political parties.
- **Election Symbols (Reservation and Allotment) Order, 1968, Paragraph 15:** Empowers ECI to determine the legitimate faction of recognised national or State parties; its decision is binding.
- **Unrecognised Parties:** ECI does not adjudicate their symbol disputes; factions may resolve them internally or approach civil courts.

Tests for Determining the Legitimate Faction: **Sadiq Ali v. Election Commission of India (1971)** - Supreme Court upheld ECI's authority under Paragraph 15.

- **Majority Test:** Assesses support among organisational office-bearers, delegates, Members of Parliament (MPs) and Members of Legislative Assembly (MLAs).
- **Aims and Objects Test:** Examines the party constitution and stated objectives.
- **Party Constitution Test:** Examines adherence to party rules and democratic organisational elections.

Freezing of Reserved Symbols

- **Temporary Freezing:** ECI may freeze the disputed name and symbol when resolution before an election is impracticable.
- **Interim Arrangement:** Factions contest under temporary names using separate symbols from the free-symbol list.
- **Legislative Majority:** May receive greater weight when organisational support is uncertain or disputed.

Position of the Losing Faction

- **Final Decision:** Losing faction cannot retain the disputed name or symbol.
- **Separate Identity:** May adopt another name and obtain a different ECI-allocated symbol.
- **Recognition:** Must independently meet electoral performance criteria for State or National party recognition.

7.4. TULU GETS ADDITIONAL OFFICIAL LANGUAGE STATUS IN KARNATAKA

- **Context:** Karnataka recognised Tulu as the second additional administrative language in Dakshina Kannada and Udupi; ₹82 lakh annual funding allocated for its promotion.
- **Constitutional Provisions:**
 - **Article 345:** State Legislature can adopt one or more languages in use in the State as its official language(s).
 - **Article 347:** President may direct recognition of a language spoken by a substantial section of the population.
 - **Eighth Schedule:** Recognises 22 languages; Tulu is not included.
- **Tulu Language: Family:** Dravidian language. || **Region:** Tulunadu — coastal Karnataka and parts of Kasaragod, Kerala. || **Script:** Tulu script, also known as Tigalari, belongs to the Southern Brahmic script tradition. || **Culture:** Associated with Yakshagana, Bhuta Kola and rich oral traditions.

7.5. SC STRENGTHENS SAFEGUARDS AGAINST ILLEGAL ARREST AND RE-ARREST

Context: In *Jaskaran Jeet Singh Deol v. State of Punjab (2026)*, the Supreme Court strengthened Article 22 safeguards, holding that failure to properly communicate the grounds of arrest can make the arrest and subsequent detention illegal and unconstitutional. It also laid down **safeguards against re-arrest**.

Key Constitutional and Legal Safeguards

- **Article 22(1):** An arrested person must be informed of the grounds of arrest at the earliest and cannot be denied the right to consult a legal practitioner.

- **BNSS, 2023:** Police officers must communicate the complete details of the alleged offence to the arrested person.
- **Written Grounds of Arrest:** *Pankaj Bansal v. Union of India (2023)* required written grounds of arrest under the **PMLA, 2002**. Later, *Mihir Rajesh Shah v. State of Maharashtra (2025)* extended this requirement to **all statutes**, in a language understood by the arrested person.
- **Release from Illegal Detention:** Release following an Article 22(1) violation is not bail. It is release from illegal and unconstitutional detention, with the initial arrest treated as legally invalid.

Safeguards Against Re-arrest

- An investigating agency cannot independently re-arrest a person released because of an Article 22 violation. Prior approval from a Magistrate is required for a fresh arrest.
- A re-arrest application must be **endorsed by a senior police officer**.
- The investigation must be handed over to **another officer**.
- A departmental inquiry must be initiated against the officer responsible for the initial constitutional violation.

Compensation for Constitutional Violations

- **High Courts can grant compensation** as a public law remedy for **violating Article 22(2)**, which requires an arrested person to be produced before a Magistrate within 24 hours.
- This does not prevent the accused from pursuing **separate civil remedies**.

Judicial Check on Police Powers

- The ruling reinforces that Article 22 protections are constitutional guarantees, not mere procedural requirements. It therefore strengthens judicial oversight over the State's power to restrict personal liberty under Article 21.

7.6. LEGAL FRAMEWORK FOR ENTRY AND STAY OF FOREIGN NATIONALS

Context: Delhi High Court held that a valid visa does not guarantee entry into India. A Turkmenistan citizen was denied entry due to adverse intelligence inputs.

Government's Sovereign Power

- Hans Muller of Nuremburg v. Superintendent, Presidency Jail (1955): Recognised the Central Government's broad power to regulate foreigners' entry and expulsion.
- Entry and expulsion decisions involve national security, foreign policy and sovereign discretion.

Visa and Constitutional Rights

- A visa does not guarantee admission. Immigration officers make the final entry decision.
- Article 21: Protects foreigners' life and personal liberty.
- Article 19(1)(e): Right to reside and settle in India applies only to citizens.
- Article 14: Differential treatment is permissible when supported by relevant distinctions, such as individual-specific intelligence inputs.

Immigration and Foreigners Act, 2025

- Section 3: Requires valid passports and visas; permits entry restrictions on grounds including national security, sovereignty, foreign relations and public health.
- Section 7: Empowers the Central Government to prohibit, regulate or restrict foreigners' entry and presence in India.

Immigration and Foreigners Rules, 2025

- Foreigners holding visas valid for over 180 days and intending to stay longer must register before completing 180 days.
- Extensions are permitted only in emergent circumstances.
- Immigration officers can verify documents, seek additional information and independently decide admission.

7.7. DEPARTMENT-RELATED PARLIAMENTARY STANDING COMMITTEES (DRSCS)

Context: Lok Sabha Speaker and Rajya Sabha Chairman reconstituted DRSCs for 2026-27.

Key Features

- **Purpose:** Scrutinise Union Ministries' finances, legislation, policies and functioning to ensure executive accountability.
- **Evolution and Composition:** Established in 1993 with 17 committees, expanded to 24 in 2004 covering all Union Ministries and Departments; each has 31 members (21 Lok Sabha and 10 Rajya Sabha), with broadly proportional party representation.
- **Tenure and Membership:** Reconstituted annually for a maximum one-year tenure; Ministers cannot serve, and members cease to serve upon becoming Ministers.
- **Chairpersons:** Appointed by the Rajya Sabha Chairman for Part I and the Lok Sabha Speaker for Part II of the Fifth Schedule to the respective Rules.
- **Functions:** Examine Demands for Grants, referred Bills, annual reports and referred long-term policy documents; exclude day-to-day administration and matters generally examined by other parliamentary committees.
- **Recommendations and Reports:** Recommendations are advisory and non-binding; reports generally reflect consensus, with dissenting notes permitted.
- **Meetings and Consultation:** Quorum is one-third of membership (10 for a 31-member committee); meetings are held in private. Committees may seek official records, documents, witness testimony and expert or public opinion.
- **Constitutional Basis:** Article 105 deals with parliamentary powers and privileges; Article 118 empowers each House to regulate its procedure and conduct of business.

7.8. 153RD ASSEMBLY OF THE INTER-PARLIAMENTARY UNION (IPU)

Context: India participated in the 153rd IPU Assembly in Arusha, Tanzania, focusing on inclusive governance, public trust and global cooperation.

Theme: Enhancing good governance and empowering communities through inclusivity, trust and opportunities for all.

Key Outcomes

- **Arusha Communiqué:** Promotes inclusive governance, accountability, public trust and community empowerment.
- **Resolutions:** Addressed disability rights and climate-disaster resilience, particularly in the Himalayan region.
- **New President:** Milton Dick, Speaker of Australia's House of Representatives, elected 32nd IPU President, succeeding Tanzania's Tulia Ackson.

Inter-Parliamentary Union (IPU)

- **Establishment:** Founded in Paris on 30 June 1889 by William Randal Cremer (Britain) and Frédéric Passy (France). **Headquarters:** Geneva, Switzerland, since 1921.
- **Membership:** As of October 2026, 184 Member Parliaments and 15 Associate Members; Nauru became the 184th member during the 153rd Assembly.
- **IPU Assembly:** Main political body; adopts resolutions on global issues and generally meets twice yearly. International Day of Parliamentarism: Observed on 30 June.

7.9. ARMED FORCES SPECIAL POWERS ACT, 1958

Context: The Ministry of Home Affairs extended AFSPA for six months in designated disturbed areas of Arunachal Pradesh, Manipur and Nagaland.

Key Provisions

- **Origin:** Enacted to address the Naga uprising, replacing the Assam Disturbed Areas Act,

1955. Its colonial predecessor was the Armed Forces Special Powers Ordinance, 1942.

- **Powers:** Allows armed forces to use force, arrest without warrant and search premises without warrant in disturbed areas, subject to statutory conditions.
- **Legal Safeguard:** Prosecution for specified acts requires prior Central Government sanction.
- **Separate Law:** Jammu and Kashmir is covered by the Armed Forces Special Powers Act, 1990.
- **Declaration of Disturbed Areas** → Section 3: Central Government, State Governor or Union Territory Administrator may declare an area disturbed when deployment of armed forces is necessary to assist civil authorities.
- **Current Status:** The Union Government has gradually reduced AFSPA's geographical coverage since 2022. It has been withdrawn completely from Tripura and Meghalaya. Extensions continue in specific areas due to insurgency and security concerns.

Committees and Judicial Review

- **Justice B. P. Jeevan Reddy Committee, 2005:** Recommended repealing AFSPA and incorporating its provisions into the Unlawful Activities Prevention Act.
- **Justice Santosh Hegde Commission, 2013:** Examined alleged extrajudicial killings in Manipur and raised concerns about fake encounters.
- **Supreme Court, Naga People's Movement of Human Rights case, 1997 to 1998:** Upheld AFSPA's constitutional validity and emphasised periodic review of disturbed area declarations, normally every six months.

INTERNATIONAL RELATIONS

1. PARTNERS FOR MULTILATERALISM SUMMIT AND V4+INDIA

Context: At the 81st United Nations General Assembly (UNGA) in New York, India's External Affairs Minister co-chaired the inaugural Partners for Multilateralism, International Law, Peace and Prosperity (P4M) Summit and attended the first V4+India Foreign Ministers' Meeting. India sought multilateral reforms, stronger Central European ties and support for permanent United Nations Security Council (UNSC) membership.



Outcomes of the V4+India Meeting

- UNSC support:** All four Visegrad Group (V4) members unanimously supported India's permanent membership. Slovakia highlighted India's Global South leadership and Indo-Pacific importance.
- Institutionalised engagement:** Agreed to establish an Annual Business Forum and hold annual V4+India Foreign Ministers' meetings.

Significance of V4 for India

- Central and Eastern Europe (CEE):** Provides strategic access to the region amid geopolitical changes following the Ukraine conflict, diversifying engagement beyond France and Germany.
- India-EU trade:** V4's collective influence in the European Parliament offers scope to build support for the India-EU Broad-based Trade and Investment Agreement (BTIA) and address concerns over the Carbon Border Adjustment Mechanism (CBAM).

- **Supply-chain diversification:** Hungary and Slovakia's automotive and electric vehicle (EV) battery industries offer opportunities for resilient global value chains and India's China Plus One strategy.
- **Technology and defence:** Czech expertise in aviation, radar and heavy engineering, and Polish strengths in mining technology and agri-tech can support Make in India and Atmanirbhar Bharat.
- **Skilled mobility:** Ageing populations and labour shortages in V4 economies create opportunities for Indian science, technology, engineering and mathematics (STEM) professionals and information technology (IT) specialists. Migration and Mobility Partnership Agreements (MMPAs) can facilitate movement.

Conclusion: Stronger India–Central Europe cooperation and inclusive multilateral reforms can advance Global South representation, strategic convergence and resilient partnerships for a more stable international order.

2. INDIA–CHINA TRADE AND ATMANIRBHAR BHARAT

Context: India's rising trade deficit with China exposes the gap between expanding domestic manufacturing and genuine self-reliance. Dependence on Chinese components and capital goods creates an “assembly trap” rather than deep manufacturing capability.



Challenges to Self-Reliance

1. Strategic Dependence

- **Pharmaceuticals:** Despite being the “pharmacy of the world”, India imports 65–70% of its Active Pharmaceutical Ingredients (APIs), intermediates and Key Starting Materials (KSMs). Declining domestic capacity at Hindustan Antibiotics Limited (1954) and Indian Drugs and Pharmaceuticals Limited (1961) increased import dependence.
- **Green energy:** China supplies over 75–80% of solar cells and modules and key electric vehicle (EV) and lithium-ion battery components.
- **Electronics:** Integrated circuits, telecom equipment and Printed Circuit Board Assemblies (PCBAs) account for nearly one-fourth of imports from China, creating digital-economy vulnerabilities.
- **Rare earths:** China controls around 90% of global rare-earth magnet manufacturing. Its April 2025 export controls slowed Indian automobile production, exposing supply-chain risks.

2. Assembly Trap and Low Value Addition

- **Production-Linked Incentives (PLI)** and the **Phased Manufacturing Programme (PMP)** expanded electronics assembly without developing adequate domestic precision-component networks.

- **Imported smartphone parts and sub-assemblies** rose from 3.3% of India's China import basket in 2022 to 10.1% in 2025, despite higher production and exports.

3. Structural and Competitiveness Constraints

- **Trade imbalance:**

India exports lower-value iron ore, cotton and marine products while importing high-value technological, intermediate and capital goods.

- **World Trade Organization (WTO)**

Information Technology Agreement (ITA): Tariff reductions on IT products, without comparable domestic manufacturing capabilities, weakened India's competitiveness against Chinese producers.



- **Micro, Small and Medium Enterprises (MSMEs):** Inverted duty structures can make domestic raw materials costlier than imported semi-knocked-down kits, discouraging tier-2 and tier-3 component manufacturers.
- **Research and Development (R&D):** Spending remains around 0.64–0.7% of Gross Domestic Product (GDP); cheap Chinese components can discourage indigenous innovation.
- **Cost disadvantage:** Chinese subsidies, integrated industrial clusters and economies of scale make components cheaper. Blanket tariffs or restrictions can raise costs and weaken Indian exports, including generic drugs and electronics.
- **Indirect dependence:** Imports routed through third countries, including Hong Kong, may conceal continuing dependence.
- **Premature liberalisation:** Unlike several East Asian economies, India liberalised trade without first developing comparable manufacturing capabilities.

Policy Measures for Deeper Self-Reliance

- **Strengthen MSMEs:** Provide tier-2 and tier-3 suppliers with shared R&D facilities, plug-and-play industrial clusters and affordable credit.
- **Reorient PLI:** Reward domestic value addition, precision tooling and local supplier networks rather than final assembly alone. Map value chains and prioritise gaps in mobile integrated circuits and solar cells.
- **Promote design-led manufacturing:** Expand Design-Linked Incentives (DLI) beyond semiconductors to telecom and EVs; strengthen Indian intellectual property and product design.
- **Guarded globalisation:** Combine friendshoring and the China Plus One strategy with reliable supply-chain partnerships across Taiwan, Japan, South Korea, Europe and the Association of Southeast Asian Nations (ASEAN).
- **Targeted tariffs:** Apply phased restrictions where viable domestic alternatives exist, allowing MSMEs time to build capacity while avoiding blanket measures that disrupt production.

- **Resource security through recycling:** Electronic waste generation reached 13.98 lakh tonnes in 2024–25, up from 12.54 lakh tonnes in 2023–24. Recycling e-waste, solar panels and used EV batteries can recover lithium, cobalt and rare earths, reducing import dependence.

Conclusion: Atmanirbhar Bharat requires a shift from assembly to deep manufacturing, higher domestic value addition and indigenous technological capabilities, supported by diversified and resilient global supply chains.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>Consider the following statements regarding India's trade dependence on China:</p> <ol style="list-style-type: none"> 1. India's imports from China are predominantly composed of consumer goods, rather than intermediate and capital goods. 2. Dependence on imported components can create an "assembly trap" by limiting domestic value addition despite growth in manufacturing output. 3. Targeted tariffs combined with development of domestic component manufacturing can reduce import dependence without necessarily disrupting existing production chains. <p>Which of the statements given above is/are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: B. 2 and 3 only</p>	<p>Q. India's growing dependence on Chinese intermediate and capital goods reveals an "assembly trap" that limits the depth of Atmanirbhar Bharat. Examine the structural challenges behind this dependence and suggest measures to achieve genuine manufacturing self-reliance without undermining export competitiveness.</p> <p>(250 words, 15 marks)</p>

3. DEBATE ON UNITED NATIONS SECURITY COUNCIL VETO POWER

Context: At the 81st United Nations General Assembly (UNGA) session in September 2026, members debated veto reform, particularly during humanitarian crises. Russia reiterated support for India's permanent membership, while India sought time-bound reforms aligned with the Pact for the Future (2024).

Arguments for Ending or Restricting the Veto

- **Democratic deficit:** Veto privileges of the five permanent members (P5) conflict with sovereign equality among UN members.
- **Institutional paralysis:** Russia, often with China, vetoed over 15 draft resolutions on the Syrian Civil War during 2011–2023. A threatened veto, or "pocket veto," can prevent proposals from being introduced.
- **Accountability deficit:** Vetoes can shield P5 members and strategic allies from accountability for alleged violations of international law and the Responsibility to Protect (R2P).
- **Veto statistics:** Between 1945 and 2025, the veto was used 320 times on 264 draft resolutions or amendments; the Soviet Union/Russia accounted for 155 uses and the United States for 94.



- **Outdated representation:** The P5 reflects the 1945 geopolitical order, excluding Africa, Latin America and major powers such as the G4 (India, Brazil, Germany and Japan) from permanent membership.
- **French position:** France argues that veto power entails a special responsibility to enable action against mass atrocities.

Arguments for Retaining the Veto

- **Preventing a League of Nations-like failure:** The League's unanimity-based system failed when major powers withdrew over decisions conflicting with their interests. The veto acts as a safety valve to retain major powers within the United Nations.
- **Charter constraints:** Under Article 108, amendments require approval by two-thirds of UNGA members and ratification by all five permanent members, giving the P5 a legal veto over abolition proposals.
- **Risk of greater paralysis:** The Uniting for Consensus (Coffee Club) argues that extending veto powers to more permanent members could deepen institutional gridlock.

Existing Reform Initiatives

- **French-Mexican Initiative (2015):** Calls for voluntary P5 restraint during genocide, crimes against humanity and large-scale war crimes. Supported by 128 member states, including France and the United Kingdom.
- **Liechtenstein Initiative:** UNGA Resolution 76/262 (2022) requires a formal UNGA meeting within 10 working days of a UNSC veto, increasing transparency and requiring the vetoing member to explain its position publicly.
- **Accountability, Coherence and Transparency (ACT) Code of Conduct:** Urges UNSC members not to oppose credible resolutions aimed at preventing or stopping mass atrocities.



Way Forward

- **Normative restraint:** Build wider acceptance of voluntary veto restraint during verified humanitarian crises.
- **Post-veto accountability:** Link UNGA debates to independent investigations and humanitarian access, including through the Uniting for Peace framework.
- **Negotiated expansion:** Develop a single negotiating text under IGN, considering G4 permanent membership with a long-term veto moratorium.
- **Objective triggers:** Use factual alerts from independent bodies, such as the International Court of Justice (ICJ) or the United Nations High Commissioner for Human Rights, to activate voluntary restraint mechanisms.

Conclusion: UNSC reform must balance geopolitical realities with humanitarian imperatives. Greater representation, responsible veto use and accountable multilateralism can strengthen the legitimacy and effectiveness of global governance.

Test Your Knowledge	
<p>Prelims Corner</p> <p>With reference to the veto power in the United Nations Security Council, consider the following statements:</p> <ol style="list-style-type: none"> 1. A negative vote by any permanent member blocks a substantive resolution, irrespective of the number of affirmative votes. 2. Abstention by a permanent member is treated as a veto on a substantive resolution. 3. The requirement of ratification by all five permanent members for Charter amendments gives them a legal veto over proposals to abolish the veto power. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 3 only (b) 1 and 2 only (c) 2 and 3 only (d) 1, 2 and 3</p> <p>Answer: (a) 1 and 3 only</p>	<p>Mains Corner</p> <p>Q. The UNSC veto power reflects both the geopolitical realities of 1945 and the institutional constraints of contemporary multilateralism. Discuss the need for veto reform and examine India's approach towards making the UNSC more representative and effective. (15 marks, 250 words)</p>

4. INDIA–SWITZERLAND RELATIONS: EXPANDING STRATEGIC AND ECONOMIC TIES

Context: The Swiss Confederation President's 2026 state visit to India coincided with the first anniversary of the India–European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA), focusing on trade, investment, defence, nuclear energy and infrastructure.

Evolution of Bilateral Relations

- **Diplomatic foundation:** Treaty of Friendship signed in New Delhi in 1948, among independent India's earliest treaties.
- **Trade:** Switzerland was India's 15th-largest trading partner in financial year (FY) 2024–25, with bilateral trade of USD 23.27 billion.
- **Indian exports:** Organic chemicals, jewellery, metals, textiles, electrical equipment, pharmaceuticals, agricultural products and machinery.
- **Swiss exports:** Gold bullion, chemicals, pharmaceuticals, machinery, transport equipment, precision instruments and watches.

Trade, Investment and Scientific Cooperation

- **India–EFTA TEPA:** Implemented in October 2025. EFTA members committed to mobilising USD 100 billion in Foreign Direct Investment (FDI) and creating one million direct jobs in India over 15 years.
- **Swiss investment:** USD 10.87 billion invested in India between April 2000 and June 2025, making Switzerland India's 12th-largest FDI source.
- **Scientific cooperation:** The Indo-Swiss Joint Research Programme (ISJRP) supports bilateral research. India is an associate member of the European Organization for Nuclear Research (CERN), Geneva, where India's gifted Nataraja statue is installed.

European Free Trade Association (EFTA)

- **Formation:** Established in 1960 under the Stockholm Convention to promote free trade and economic integration.
- **Members:** Iceland, Liechtenstein, Norway and Switzerland.
- **Relationship with the European Union (EU):** EFTA is not a customs union; members set their own external tariffs, and none belongs to the EU. Iceland, Liechtenstein and Norway participate in the EU single market through the European Economic Area (EEA), while Switzerland relies on bilateral agreements.
- **India-EFTA trade:** India is EFTA's fifth-largest trading partner, with USD 24.4 billion in two-way trade in 2024-25. Switzerland is India's largest EFTA trading partner.
- **India-EFTA Desk:** Invest India's single-window mechanism facilitates investment under TEPA.

Key Challenges

- **Investment protection:** Switzerland seeks a new Bilateral Investment Treaty (BIT), as India terminated its earlier BITs in 2017.
- **Intellectual property rights (IPR):** Swiss pharmaceutical firms oppose restrictions on patent ever-greening under Section 3(d) of the Patents Act, 1970 and seek stronger data exclusivity and patent-term extensions. India must safeguard affordable generic medicines and its pharmaceutical industry.
- **Trade deficit:** Large imports of Swiss gold, precision machinery and pharmaceuticals create a structural deficit for India.
- **TEPA implementation:** The USD 100 billion investment commitment lacks a government guarantee and depends on private investment decisions. India must attract USD 50 billion in the first 10 years and another USD 50 billion in the following five.
- **Geopolitical differences:** Switzerland maintains traditional neutrality and hosts Western-led initiatives, including the Ukraine Peace Summit. India pursues strategic autonomy and multi-alignment, avoiding bloc-based sanctions while engaging competing powers.



Way Forward

- **Accelerate investment:** Strengthen monitoring through the India-EFTA Investment Desk and channel Swiss investment into precision engineering, renewable energy and medical devices under Production-Linked Incentive (PLI) schemes.
- **Pharmaceutical cooperation:** Move beyond patent disputes towards joint ventures in clinical research, Active Pharmaceutical Ingredient (API) manufacturing and research and development (R&D).
- **Apply Swiss engineering:** Use expertise in alpine tunnelling, avalanche protection and ropeways for Himalayan connectivity, border roads, the Char Dham route and urban transport.
- **Green and emerging technologies:** Expand cooperation in green hydrogen, carbon capture and quantum technology, supporting India's National Green Hydrogen Mission.

Conclusion: India-Switzerland relations can evolve into a technology-driven strategic partnership, combining Swiss innovation with India's scale to advance investment, green transition and shared prosperity.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>With reference to the European Free Trade Association (EFTA), consider the following statements:</p> <ol style="list-style-type: none"> 1. EFTA comprises Iceland, Liechtenstein, Norway and Switzerland. 2. EFTA is a customs union with a common external tariff for all its members. 3. Iceland, Liechtenstein and Norway participate in the European Union's Single Market through the European Economic Area. 4. Switzerland accesses the European Union market through separate bilateral agreements. <p>Which of the statements given above are correct?</p> <p>A. 1, 3 and 4 only B. 1 and 2 only C. 2, 3 and 4 only D. 1, 2, 3 and 4</p> <p>Answer: A</p>	<p>Q. India-Switzerland relations are evolving beyond trade towards a broader strategic partnership encompassing investment, technology, defence, clean energy and human mobility. Examine the opportunities and challenges in deepening this partnership.</p> <p>(15 marks, 250 words)</p>

5. INDIA'S DEVELOPMENT ASSISTANCE TO BHUTAN

Context: India provided ₹290 crore for Bhutan's development projects covering education, healthcare, disaster preparedness and public infrastructure.

- **Key projects:** Royal University of Bhutan colleges, National Weather and Flood Warning Centre, Thimphu District Court and Gelephu General Hospital.
- **Digital Drukyl:** ₹8.83 crore allocated to modernise e-governance and improve public service delivery.

India-Bhutan Relations

A Special Friendship for Peace, Prosperity and Shared Progress

<p>1 Diplomatic Relations</p> <ul style="list-style-type: none"> Established in 1968. Guided by the Treaty of Friendship and Cooperation, 1949, revised in 2007. 	<p>2 Geographical Links</p> <ul style="list-style-type: none"> Bhutan borders four Indian states: Assam, Arunachal Pradesh, West Bengal and Sikkim.
<p>3 Digital Cooperation</p> <ul style="list-style-type: none"> Bhutan was the second country to launch the BHIM app. India supports Digital Drukyl through optical fibre infrastructure. 	<p>4 Space Cooperation</p> <ul style="list-style-type: none"> The jointly developed India-Bhutan SAT was launched by ISRO on 26 November 2022.
<p>5 Education</p> <ul style="list-style-type: none"> India assists Bhutan in addressing shortages of science, technology, engineering and mathematics (STEM) teachers. 	<p>6 Rail Connectivity</p> <ul style="list-style-type: none"> Proposed cross-border links include Kokrajhar-Gelephu and Banarhat-Samtse.
<p>7 Hydropower Cooperation</p> <ul style="list-style-type: none"> Major projects include: <ul style="list-style-type: none"> Punatsangchho-II (1,020 megawatts) Punatsangchho-I (1,200 megawatts) Proposed Durjilung (1,125 megawatts). 	

Key Challenges in India–Bhutan Relations

- **Hydropower project delays:** Punatsangchhu-I faces geological instability and cost escalation, delaying returns on India's hydropower investments and electricity imports.
- **Trade imbalance and market access:** Bhutan's trade dependence on India and limited export diversification constrain economic resilience, despite preferential bilateral trade arrangements.
- **China–Bhutan boundary negotiations:** The 2023 Cooperation Agreement on the Bhutan–China Boundary Question raises strategic concerns around Doklam, near India's Siliguri Corridor.
- **Climate and disaster vulnerability:** Glacial lake outburst floods (GLOFs), exemplified by the 2023 South Lhonak Lake disaster, threaten Bhutanese settlements and hydropower infrastructure.
- **Connectivity and strategic dependence:** Limited cross-border rail links, difficult Himalayan terrain and concentrated transit routes constrain Bhutan's access to wider regional markets.

Way Forward

- **Expedite hydropower cooperation:** Implement the March 2024 Joint Vision on Energy Partnership, resolve Punatsangchhu-I bottlenecks and expand solar, green hydrogen and transmission links.
- **Diversify trade and investment:** Leverage Gelephu Special Administrative Region, border haats and private investment to expand Bhutanese exports beyond hydropower and minerals.
- **Accelerate cross-border connectivity:** Implement the ₹4,033-crore Kokrajhar–Gelephu and Banarhat–Samtse rail links, alongside integrated check posts and multimodal logistics.
- **Strengthen strategic dialogue:** Sustain confidential India–Bhutan consultations on China's boundary negotiations, particularly Doklam, while respecting Bhutanese sovereignty and protecting shared security interests.
- **Build climate-resilient infrastructure:** Integrate GLOF early-warning systems, glacial lake monitoring and dam-safety protocols into hydropower projects, drawing lessons from the 2023 Teesta disaster.

Conclusion: India–Bhutan cooperation can evolve into a model of trust-based neighbourhood diplomacy, combining sustainable hydropower, economic diversification and climate resilience to advance shared prosperity while safeguarding strategic autonomy and mutual security.

6. POINTERS FOR PRELIMS

6.1. G20: ENERGY, WATER AND CRITICAL MINERALS

Context: G20 members adopted four consensus outcomes at the G20 Energy Abundance Ministerial, Houston, Texas.

- Outcomes are consensus-based political commitments, not legally binding treaties.
- Implementation depends on national policies and investments.
- Supports India's priorities in clean cooking, water conservation, energy infrastructure and critical-mineral security.

Four Key Outcomes

- **Clean Cooking:** Promote affordable clean-cooking solutions; LPG can replace traditional biomass where reliable supply is feasible.
- **Infrastructure Approvals:** Streamline domestic permitting and regulatory processes to accelerate energy projects.
- **Water Reuse:** Promote voluntary recycling of water across agriculture, communities, manufacturing and energy, based on intended use and water quality.

- **Critical Minerals:** Strengthen secure, affordable and diversified supply chains through information sharing, investment, innovation, capacity building and local value addition.

6.2. US, DENMARK AND GREENLAND ARCTIC SECURITY AGREEMENT

Context: The US, Denmark and Greenland signed a trilateral agreement to strengthen Arctic and North Atlantic security. It amends the 1951 US Denmark Defence Agreement while respecting Greenland's sovereignty and self determination.

Key Provisions

- **Military Access:** Modernisation of Pituffik Space Base and additional defence areas at Narsarsuaq and Mestersvig. Expanded US military access for aircraft, vessels and undersea operations.
- **Missile Defence:** Cooperation may include deployment of the Golden Dome missile defence system.
- **NATO Role:** Enhanced Arctic military planning, exercises, presence and intelligence sharing.
- **Security Safeguards:** Limits non-NATO military presence and restricts foreign control over critical infrastructure and resource extraction.
- **Geographical Importance:** Greenland lies between North America and Europe, near emerging shipping routes and resource reserves.
- **Arctic Geopolitics:** Growing competition involving Russia and China increases Greenland's importance for defence and regional security.

6.3. ENEMY STATE CLAUSES IN THE UN CHARTER

Context: Japan called for removing enemy state clauses from the United Nations Charter, arguing that they are obsolete. The UN Charter came into force in October 1945 after World War II. The Allied Powers included these clauses to prevent renewed militarism in defeated Axis countries, mainly Japan, Germany and Italy.

Key Provisions

- **Article 53:** Permits enforcement action against enemy states by regional arrangements without prior UN Security Council authorisation.
- **Article 77:** Covers territories separated from enemy states under the UN trusteeship system.
- **Article 107:** Protects Allied actions against Axis powers during and after World War II.
- **Article 53(2):** Defines enemy states by their status as enemies of UN Charter signatories during World War II.
- **These clauses** are an **exception** to **Article 2(4)**, which generally prohibits the threat or use of force against states.

Why Obsolete

- **Japan joined the UN in 1956.** The UN General Assembly declared the clauses obsolete in 1995 and supported their removal through a resolution in 2005.
- **China and Russia have invoked** them in diplomatic disputes concerning Japan's defence spending and territorial claims over the southern Kuril Islands.

Challenges to Removal

- UN Charter amendment **requires a two thirds majority in the UN General Assembly** and **ratification by two thirds of UN members**, including all **five permanent** members of the Security Council.
- Permanent members are **reluctant to reopen the Charter** amid demands for Security Council reforms and membership expansion.

Significance for India: India and Japan, along with Germany and Brazil, are members of the G4, which advocates Security Council reform to make global governance more representative, legitimate and effective.

6.4. END OF OPERATION INHERENT RESOLVE IN IRAQ

- **Context:** The US completed its troop withdrawal from Iraq, ending its 12-year Operation Inherent Resolve, launched in 2014 to defeat the Islamic State.
- **Background:** The US invaded Iraq in 2003 and overthrew Saddam Hussein's Ba'athist regime. After withdrawing in 2011, US forces returned in 2014 at the Iraqi government's invitation to counter ISIS, which controlled nearly one-third of Iraq at its peak. ISIS lost territorial control in Iraq in 2017.
- **Geographical Profile of Iraq**
 - **Location:** West Asia, in historic Mesopotamia, meaning land between rivers.
 - **Boundaries:** Turkey in the north, Iran in the east, Kuwait and the Persian Gulf in the southeast, Saudi Arabia in the south, Jordan in the southwest and Syria in the west.
 - **Rivers:** Tigris and Euphrates merge into the Shatt al Arab, which drains into the Persian Gulf.

6.5. INDIA PARTICIPATES IN SCO MEETING IN PAKISTAN

Context: An Indian diplomat attended the SCO Council of National Coordinators meeting in Pakistan, marking the first official Indian delegation visit since recent military confrontations, including Operation Sindoor.

India's Participation: India's participation fulfils its obligations as a full SCO member and enables regional decision-making and monitoring.

Key Facts about SCO

- **Membership:** 10 Eurasian members: India, China, Russia, Pakistan, Iran, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.
- **Chairmanship:** Pakistan holds the rotating chairmanship for 2026–27 under the theme "Turning Vision into Action: Connectivity, Innovation and Shared Prosperity."
- **Summit:** Pakistan is scheduled to host the SCO Council of Heads of State Summit in August 2027.

Note: To read more about the significance of SCO, please refer to the 5th Article under the "International Relations" section of the September 2026 Magazine.

6.6. INDIA–GHANA STRATEGIC COOPERATION

Context: External Affairs Minister S. Jaishankar visited Ghana to strengthen trade, investment, pharmaceuticals, defence, technology and engagement with the African Union and ECOWAS.

Ghana: Geographical Profile

- **Location:** West Africa, along the Gulf of Guinea; borders Côte d'Ivoire (west), Burkina Faso (north) and Togo (east). Capital: Accra.
- **Historical Significance:** First sub-Saharan African country to gain independence from colonial rule (1957).

Regional and Economic Significance

- **ECOWAS:** Founding member of the Economic Community of West African States.
- **AfCFTA:** Accra hosts the African Continental Free Trade Area Secretariat, promoting continental trade integration.

6.7. US PERM SUSPENSION AND THE INDENTURED SERVANTS CONTROVERSY

Context: India's Ministry of External Affairs criticised the US for calling foreign technology workers "indentured servants" after the US Department of Labor suspended PERM applications for eight technology companies, including TCS, Infosys, Wipro, HCL Technologies and Cognizant.

PERM Programme

- **PERM** is the US Department of Labour's electronic system for Permanent Labor Certification, a mandatory first step for employment based Green Cards under EB 2 and EB 3 categories.
- **EB 2** covers professionals with advanced degrees or exceptional ability.
- **EB 3** covers skilled workers, professionals with bachelor's degrees and other workers.
- Employers must show that qualified US workers are unavailable and foreign hiring will not reduce domestic wages.

PERM and H-1B

- **H-1B is a temporary non-immigrant** work visa, generally valid for three to six years. Indians account for approximately 70 to 72 per cent of holders.
- **PERM leads towards permanent residency.** Its suspension does not affect H-1 B visas directly.

Historical Context of Indentured Labour

- After slavery was abolished in the British Empire in 1833, indentured labour expanded under the **Girmitiya system**.
- Over 1.5 million Indians were **transported under penal five year contracts called Girmit to plantations** in Fiji, Mauritius, Trinidad and Tobago, Guyana, Suriname, South Africa and Malaysia.

6.8. FIRST BIMSTEC HOME MINISTERS' MEETING AND DELHI DECLARATION

Context: First BIMSTEC Home Ministers' Meeting concluded in New Delhi with the adoption of the Delhi Declaration.

Key Outcomes

- **Regional Security:** Reaffirmed sovereign equality, territorial integrity, non-interference and peaceful coexistence among seven members.
- **Counterterrorism:** Condemned terrorism, including cross-border terrorism; called for implementing UNSC sanctions, particularly those of the 1267 Sanctions Committee.
- **Human Trafficking and Cybercrime:** Promoted coordinated action against trafficking, cyber slavery, online scams and forced criminality through a victim-centred approach.
- **Terror Financing:** Emphasised preventing radicalisation, terrorist recruitment, money laundering, terror financing and misuse of emerging technologies.
- **Legal Cooperation:** Called for implementing conventions on terrorism, transnational organised crime and illicit drug trafficking (in force since March 2021), and mutual legal assistance (signed in March 2022).
- **Pending Agreements:** Sought early finalisation of conventions on extradition, transfer of sentenced persons and human trafficking, plus standard procedures for rescuing and rehabilitating trafficking victims.
- **Information Sharing:** Proposed a BIMSTEC Drug Offences Monitoring Desk and stronger regional information sharing and training.
- **Institutional Cooperation:** Recognised the Joint Working Group on Counterterrorism and Transnational Crime; encouraged cooperation with UNODC, INTERPOL and FATF. Welcomed BIMSTEC's observer status in the Asia-Pacific Group on Money Laundering.

About BIMSTEC

- **Full Form:** Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.
- **Establishment:** 6 June 1997, through the Bangkok Declaration. Secretariat: Dhaka, Bangladesh.
- **Members:** Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand.

6.9. SOUTH KOREA COMPLETES TRIAL VOYAGE VIA ARCTIC SHIPPING ROUTE

Context: South Korea's container ship PanStar Acro completed its first commercial round trip between Busan and Europe via the Arctic, returning after 50 days.

- **Northern Sea Route:** Arctic shipping corridor along Russia's northern coast, connecting the Pacific and Atlantic sides of Eurasia.
- **Voyage:** Departed Busan on 22 August 2026, calling at Felixstowe in the United Kingdom, Rotterdam in the Netherlands and Gdańsk in Poland.

Advantages

- **Shorter Route:** Approximately 35 percent shorter than the conventional Suez Canal route between Asia and Europe.
- **Trade Efficiency:** Potentially reduces transit time and improves connectivity.
- **Supply Chain Resilience:** Diversifies shipping corridors and reduces dependence on traditional maritime chokepoints.
- **Economic Benefits:** Could strengthen South Korea's maritime industry and Busan's logistics role.

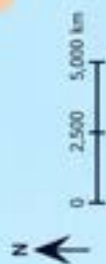
Challenges

- **Seasonal Access:** Sea ice and limited navigation windows restrict shipping.
- **High Costs:** Unpredictable weather, specialised insurance and fuel requirements increase operational uncertainty.
- **Geopolitical Risks:** Dependence on Russian Arctic waters exposes shipping to geopolitical tensions.
- **Commercial Viability:** Long-term profitability remains uncertain.

Environmental Concerns

- **Black Carbon:** Accelerates ice and snow melting by reducing surface reflectivity.
- **Oil Spills:** Difficult to contain in remote Arctic waters.
- **Ecological Damage:** Vessel noise and pollution threaten fragile Arctic ecosystems.

PLACES IN NEWS



- Russian exclave on Baltic Sea.
- Borders: Lithuania (N/E) & Poland (S) – both NATO & EU members.
- Hosts Russia's Baltic Fleet and nuclear-capable Iskander-M missiles.
- Recent concern: Russia warned NATO against attempts to isolate or attack Kaliningrad.

- **Inland sea in SE Europe.**
- **Borders:** Ukraine (N), Russia (NE), Georgia (E), Turkey (S), Bulgaria & Romania (W).
- **Recent:** Attacks on 3 commercial vessels; 7 of 18 crew members of M/V Able were Indians.

- **Strategic city in northern Mali** near Algerian border.
- **Recently recaptured by** Malian Armed Forces (FAMA) with support from Russia's Africa Corps.
- **Important desert transit hub** and political centre of Tuareg separatist movement.

- On eastern Mediterranean coast.
- Borders: Syria (E) and Israel (S).
- Home to **UNIFIL** (UN Interim Force in Lebanon).
- Recent:** UN stressed need to maintain stability as UNIFIL's final mandate nears end (31 Dec 2026).

- Indian Naval Ships Sahyadri and Kulish reached Subic Bay.
- For ASEAN Defence Ministers' Meeting Plus Joint Cooperation Activity.
- Aim: Strengthen maritime cooperation and interoperability.
- Supports Act East Policy and MAHASAGAR vision.

ECONOMY

1. 12 YEARS OF MAKE IN INDIA

Context: Make in India has completed 12 years, expanding manufacturing in **electronics, defence, automobiles, steel and pharmaceuticals**.

Major Manufacturing Gains

- **Production-Linked Incentive (PLI):** 14 sectors attracted ₹2.6 lakh crore investment, generated ₹23.8 lakh crore production and sales, and created **14.6 lakh jobs** by June 2026.
- **Electronics:** Production increased nearly sevenfold, from ₹1.9 lakh crore in 2014-15 to ₹13.11 lakh crore in 2025-26.
- **Mobile phones:** India is the **world's second-largest mobile-phone manufacturer**; 99.2% of phones used domestically are made in India. Smartphones became India's largest export category in 2025.
- **Steel:** Crude-steel output more than doubled, from 81.7 million tonnes in 2014-15 to 170 million tonnes in 2025-26.
- **Automobiles:** Production reached 31.03 million units in 2024-25, 33% higher than in 2014-15. From 2020-21 to 2024-25, passenger and commercial vehicles grew 65% each, three-wheelers 71% and two-wheelers 30%.
- **Defence:** Indigenous defence production value increased about 283% between 2014 and 2026.
- **Pharmaceuticals:** India ranks **third globally by volume and 11th by value**; turnover reached ₹5,08,630 crore in 2025-26, with 9.2% average annual growth over five years.
- **Medical devices:** Domestic manufacturing expanded 48.2% between 2019 and 2025.



New Manufacturing Measures

- **Mobile Phone Manufacturing Scheme (MPMS):** Expands production, domestic value addition and supply-chain competitiveness.
- **Semicon 2.0:** Supports semiconductor design, manufacturing, advanced packaging, materials, equipment, R&D and talent.
- **Sintered Rare Earth Permanent Magnets Scheme:** Promotes integrated **Nd-FeB magnet** production.
- **PLI for Specialty Steel (PLI 1.2):** Supports super alloys, Cold-Rolled Grain-Oriented (CRGO) steel, stainless steel, titanium alloys and coated steels.
- **Bharat Audyogik Vikas Yojana (BHAVYA):** Develops investment-ready industrial parks with integrated infrastructure.

- **BHAVYA Rasayan:** Promotes dedicated chemical parks for domestic chemical manufacturing.

Key Challenges

- **Manufacturing share:** Original target was 25% of Gross Domestic Product (GDP); manufacturing's **Gross Value Added (GVA)** share rose only from 14.6% in 2022-23 to 15.6% in 2025-26.
- **Global exports:** Non-petroleum goods exports increased from USD 253.5 billion in 2014-15 to USD 388.3 billion in 2025-26, but India's global merchandise-export share remains around **1.7%**.
- **Private investment:** Private-sector **Gross Fixed Capital Formation (GFCF)** as a share of GDP has declined.
- **Foreign Direct Investment (FDI):** Manufacturing FDI grew slower than total FDI in 7 of the last 12 years.
- **Employment:** Manufacturing has not generated sufficient broad-based employment to absorb workers shifting from agriculture.

Way Forward

- **Deepen component manufacturing:** Reduce import dependence for components; extend **Design-Linked Incentives (DLI)** to semiconductor wafers, Active Pharmaceutical Ingredients (APIs) and rare-earth magnets.
- **Frontier-tech parks:** Establish 20 proposed Plug-and-Play Frontier Tech Industrial Parks under the **National Manufacturing Mission (NMM)**.
- **Industry 4.0 for Micro, Small and Medium Enterprises (MSMEs):** Provide shared **Internet of Things (IoT)**, **Artificial Intelligence (AI) testbeds and digital twins** to enable low-cost modernisation.
- **Boost private R&D:** R&D spending is only **0.64% of GDP**; use tax credits and **Viability Gap Funding (VGF)** for advanced materials, robotics and clean technology.
- **Improve logistics:** Link manufacturing zones with ports and dedicated freight corridors through the **PM GatiShakti National Master Plan** to reduce transport time and costs.

Conclusion: India must move from **assembly-led manufacturing to deeper value addition, innovation, resilient supply chains and quality employment**, strengthening its position in global production networks.

Test Your Knowledge	
<div style="text-align: center;">  Prelims Corner </div> <p>With reference to the Make in India initiative, consider the following statements:</p> <ol style="list-style-type: none"> 1. Make in India 2.0 expanded the initiative to 27 priority sectors, covering both manufacturing and services. 2. The Production Linked Incentive (PLI) schemes cover 14 sectors. 3. The initiative aims to promote manufacturing, design and innovation in India. <p>Which of the statements given above are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: D. 1, 2 and 3</p>	<div style="text-align: center;">  Mains Corner </div> <p>Q. "Make in India has expanded India's manufacturing capabilities, but its impact on manufacturing's share in the economy and employment generation remains limited." Discuss the key challenges and suggest measures to make India a globally competitive manufacturing hub.</p> <p>(15 marks, 250 words)</p>

2. CONNECTIVITY INFRASTRUCTURE IN JAMMU AND KASHMIR

Context: India is expanding railways, highways, tunnels and airports in Jammu and Kashmir to improve all-weather connectivity, economic integration and strategic mobility.



Road and Tunnel Connectivity

1. Major Tunnels

- Sonamarg (Z-Morh) Tunnel:** 6.4-km, two-way tunnel inaugurated in January 2025 at over ₹2,700 crore. Provides all-weather Srinagar-Sonamarg connectivity towards Leh, bypassing avalanche-prone stretches and supporting tourism and livelihoods.
- Zojila Tunnel:** 13.153-km, two-way tunnel under construction between Baltal and Minamarg on National Highway 1 (NH-1). Main tunnel breakthrough achieved in June 2026. Cost: ₹6,808 crore. Expected to reduce Sonamarg-Minamarg travel time from two hours to 30 minutes, improving all-weather connectivity with Ladakh, defence logistics, tourism and trade.
- Dr Syama Prasad Mookerjee Tunnel:** Formerly Chenani-Nashri Tunnel; 9 km long, opened in 2017. Connects Udhampur and Ramban, reducing distance by 31 km and travel time by about two hours.

2. Major Highway Projects

- Pradhan Mantri Gram Sadak Yojana (PMGSY)-IV:** In August 2026, foundation stones were laid for 110 road projects covering 598.455 km at over ₹1,500 crore, benefiting 46,972 people across Udhampur-Kathua-Doda-Kishtwar. Some roads use waste plastic.
- Delhi-Amritsar-Katra Expressway:** A 667-km greenfield expressway expected to reduce Delhi-Katra travel time from 14 hours to six hours. Key sections were inaugurated in July 2026, benefiting pilgrims, industry and logistics.
- Rafiabad-Kupwara Road (NH-701):** Widening and strengthening launched in June 2025 under Project Beacon to improve last-mile and border-area connectivity.
- Shopian Bypass (NH-444):** An 8.925-km project sanctioned at ₹224.44 crore, improving Shopian-Pulwama-Kulgam connectivity and agricultural transport.

Airport Connectivity

1. Srinagar International Airport Expansion

- **Cost:** ₹1,677 crore, approved in February 2026 for the Civil Enclave within the Indian Air Force's Budgam Airbase.
 - **Capacity:** Proposed 71,500-square-metre terminal with annual capacity of 10 million passengers and 15 aircraft parking bays.
 - **Sustainability:** Kashmiri architectural features, rainwater harvesting, natural lighting and eco-friendly materials; targets a five-star Green Rating for Integrated Habitat Assessment (GRIHA) rating.
2. **Regional Air Connectivity:** Airports at Udhampur and Kishtwar are planned under the Ude Desh ka Aam Nagrik (UDAN) scheme to improve accessibility, tourism, employment and investment.

Multimodal Logistics and Integration

- **PM Gati Shakti National Master Plan**
 - Launched: October 2021 to integrate railways, roads, ports, waterways, airports and logistics through a Geographic Information System (GIS)-based platform.
 - **Coverage:** 44 Central Ministries and 36 States and Union Territories.
 - **Objective:** Improve inter-ministerial coordination, integrated planning and logistics efficiency.
- **Gati Shakti Cargo Terminals**
 - **Policy:** Gati Shakti Multi-Modal Cargo Terminal (GCT) Policy launched in December 2021 to develop modern, rail-linked cargo terminals through private investment.
 - **National progress:** 142 terminals commissioned across India.
 - **Jammu and Kashmir:** Samba terminal operational since 2024; Kathua, Anantnag and Jammu have in-principle approvals for additional terminals.

Significance

- **Economic integration:** Connects producers and businesses to national markets, trade and investment.
- **Tourism:** Improves access to pilgrimage sites, winter destinations and adventure tourism.
- **Strategic mobility:** Facilitates defence personnel, equipment and essential supplies to border areas.
- **Employment:** Generates construction jobs and supports local enterprises and services.
- **Regional inclusion:** Reduces geographical isolation and improves access to education, healthcare and essential services.
- **Logistics efficiency:** Multimodal integration can reduce transport costs, accelerate cargo movement and strengthen supply-chain resilience.

Key Challenges for Infrastructure Development in Jammu and Kashmir

- **Geological instability:** Himalayan seismicity, fragile lithology and landslides increase tunnel-collapse risks, infrastructure damage and long-term maintenance costs. **Example:** recent landslides in Jammu & Kashmir's **Chenab Valley**
- **Climate vulnerability:** Heavy snowfall, avalanches and cloudbursts disrupt NH-1, while freeze-thaw cycles damage pavements, bridges and exposed utilities.
- **Environmental degradation:** Unplanned slope cutting, muck dumping and deforestation threaten Himalayan biodiversity, river systems and ecological stability.
- **Last-mile connectivity gaps:** Remote villages in Chenab Valley, Pir Panjal and border districts remain vulnerable to seasonal road closures and inadequate public transport.

- **High construction and maintenance costs:** Extensive tunnelling, specialised machinery, remote material transportation and snow-clearance requirements increase project expenditure and operational burdens.

Way Forward

- **Disaster-resilient engineering:** Integrate slope stabilisation, rock bolting, avalanche galleries, effective drainage and seismic-resistant designs across vulnerable Himalayan highways.
- **Scientific monitoring:** Deploy GIS-based geological mapping, real-time slope sensors and structural-health monitoring for tunnels, bridges and landslide-prone corridors.
- **Ecological safeguards:** Enforce scientific muck disposal, catchment restoration and environmental-impact assessments to minimise construction-related damage to fragile Himalayan ecosystems.
- **Integrated last-mile logistics:** Connect PMGSY roads with railway stations, Gati Shakti Cargo Terminals and cold-chain facilities near Shopian, Pulwama and Baramulla.
- **Dedicated maintenance and local capacity:** Establish assured maintenance funding, avalanche-warning systems and specialised local training for tunnel operations, slope engineering and emergency response.

Conclusion: Disaster-resilient infrastructure and seamless multimodal integration can unlock regional potential while strengthening national integration and long-term prosperity.

3. SCHEME TO PROMOTE SINTERED RARE EARTH PERMANENT MAGNET MANUFACTURING

Context: The **Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnets** renews focus on building India's **domestic permanent-magnet manufacturing ecosystem** and reducing dependence on China.

REPM Manufacturing Scheme: Key Features

- The **₹7,280 crore scheme**, approved by the Union Cabinet in **November 2025**, seeks to establish an integrated domestic ecosystem for **sintered rare-earth permanent magnets**.
- It is a **first-of-its-kind national initiative** covering the complete supply chain, from **rare-earth oxide refining to metals, alloys and finished sintered magnets**.
- The scheme will operate for **7 years**, including **2 years for facility setup** and **5 years for incentive disbursement**, allowing sufficient time for infrastructure and sustained production.



- It targets **6,000 MTPA** capacity, divided among **five beneficiaries**, each receiving **1,200 MTPA**, selected through global competitive bidding.
- Its financial structure includes a **₹750 crore capital subsidy** for manufacturing units and **₹6,450 crore in sales-linked incentives**.

Need of the Scheme

- China supplied **60–90% of India's permanent magnets between 2022 and 2025**. Its dominance and tighter export rules have caused **delays, supply uncertainty, higher costs and production risks** for Indian EV and automobile manufacturers.
- India's REPM demand is expected to **double by 2030**, while imports exceeded **53,000 metric tonnes in 2024–25**.
- Domestic REPM production can strengthen industrial resilience, support **clean mobility and energy security**, and advance the goals of **Net Zero 2070 and Viksit Bharat 2047**.

Understanding Rare Earth Permanent Magnets

- REPMs are high-performance magnets made using rare-earth elements such as **Samarium (Sm), Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy) and Cerium (Ce)**.
- They outperform traditional **ferrite and AlNiCo magnets** in maximum energy product, coercivity and magnetic strength while remaining compact.
- Their high performance makes them essential for **efficient motors and miniaturised devices**.
- **Sintered REPMs** are produced by compressing fine rare-earth alloy powders under high pressure and heating them at high temperatures to create dense magnetic structures.
- **Sintered NdFeB (neodymium-iron-boron) and SmCo (samarium-cobalt)** are the strongest commercially available permanent magnets.
- In EVs, especially **NdFeB magnets**, they are important for traction motors, steering, braking and other critical systems, improving **mechanical efficiency, power output and battery range**.

Major Obstacles to Rare Earth Permanent Magnet (REPM) Self-Reliance

- **Resource Distribution:** India has 13.15 million tonnes of monazite, containing around 7.23 million tonnes of Rare Earth Oxides (REOs) across eight states: Odisha, Kerala, Andhra Pradesh, Tamil Nadu, West Bengal, Gujarat, Maharashtra and Jharkhand.
- **Light-Heavy REE Imbalance:** Deposits are dominated by Light Rare Earth Elements (LREEs) such as cerium, lanthanum and neodymium, while Heavy Rare Earth Elements (HREEs) such as dysprosium and terbium remain scarce.
- **High-Temperature Performance:** HREEs enable sintered Neodymium-Iron-Boron (NdFeB) magnets to retain magnetic properties at high temperatures in Electric Vehicle (EV) motors and wind turbines.
- **Regulatory Constraints:** Monazite contains radioactive thorium reserved for the nuclear programme, subjecting extraction to strict atomic-energy regulations and complicating rapid private processing.
- **Limited Refining and Exploration:** Weak refining capacity and exploration persist; only around 48% of critical-mineral blocks auctioned during 2020–23 were successfully sold, partly due to inadequate geological data.
- **Market Visibility Gap:** India lacks visibility into its magnet economy; despite a domestic market estimated at ₹750 crore, imports often enter embedded in EV motors and wind turbines.

Steps to Build a Stronger REPM Ecosystem

- **Strengthen urban mining:** Develop dedicated e-waste systems to recover **NdFeB magnets from used EVs and electronics**, creating secondary domestic feedstock without additional mining.
- **Secure heavy rare earths:** Address the **dysprosium shortage** through overseas asset acquisition and require supply contracts to include **processing within India**.

- **Map the complete value chain:** Upgrade the **NCMM monitoring framework** to track domestic capabilities from **ore to final assembly**, enabling better-targeted subsidies.
- **Enable safer monazite processing:** Establish a transparent, licensed route for private processing of the **non-thorium fraction of monazite**, with strict custody procedures for returning radioactive thorium residue to the state.

Conclusion: Building a resilient rare-earth ecosystem requires value-chain integration, recycling, technological depth and diversified sourcing. These measures can strengthen strategic autonomy, clean-tech manufacturing and mineral security for India's future.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>With reference to Sintered Rare Earth Permanent Magnets (REPMs), consider the following statements:</p> <ol style="list-style-type: none"> 1. Heavy Rare Earth Elements such as dysprosium and terbium help NdFeB magnets retain their magnetic properties at high temperatures. 2. Sintered NdFeB and SmCo are among the strongest commercially available permanent magnets. 3. India's monazite deposits are free from radioactive elements, facilitating unrestricted private processing. <p>Which of the statements given above is/are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: A</p>	<p>Q. India's dependence on imported rare-earth permanent magnets poses challenges to its clean-energy transition and strategic industrial resilience. Examine the key constraints in developing a domestic rare-earth permanent magnet ecosystem and suggest measures to build a secure and circular value chain.</p> <p style="text-align: right;">(15 marks, 250 words)</p>

4. INDIA'S FINTECH ECOSYSTEM

Context: The 7th Global FinTech Fest (GFF) 2026 in Mumbai highlighted India's growing role in digital finance, supported by Digital Public Infrastructure (DPI) such as Aadhaar and the Unified Payments Interface (UPI).

Significance of FinTech

- **Financial inclusion:** Reduces information asymmetry and transaction costs. India's Financial Inclusion Index rose from 43.4 (March 2017) to 70.0 (March 2026).

- **Payment efficiency:** UPI, recognised by the International Monetary Fund (IMF) as the world's largest real-time payment system, processed 2,365.8 crore transactions worth ₹29.88 lakh crore in July 2026.
- **Credit access:** Alternative digital lending expands credit beyond conventional banks.

Foundations of India's FinTech Growth

- **Digital identity and documents:**
 - **Aadhaar electronic Know Your Customer (e-KYC):** Enables paperless authentication; over 2,458 crore transactions by 29 June 2026.
 - **DigiLocker:** Over 73.53 crore registered users and 936.03 crore issued documents, improving verification and trust.
- **Jan Dhan-Aadhaar-Mobile (JAM) Trinity:** Combines banking access, digital identity and mobile connectivity. By August 2026, 59.15 crore Jan Dhan accounts had been opened; Aadhaar enrolments exceeded 144 crore by March 2026.
- **UPI:** Enables instant, low-cost and interoperable digital payments.
- **Direct Benefit Transfer (DBT):** Transfers government benefits directly into bank accounts, reducing intermediaries and leakages. Cumulative transfers reached ₹53.26 lakh crore by September 2026.
- **Open Network for Digital Commerce (ONDC):** Extends interoperability to digital commerce. By June 2026, it had over 20 crore buyers and 5 lakh sellers across 1,000-plus cities. Its Financial Services category expands opportunities for digital financial products.



FinTech Regulation in India

- **Digital payment security:** RBI's Master Directions on Digital Payment Security Controls (2021) prescribe minimum security standards for internet and mobile banking. NPCI uses AI- and ML-based fraud monitoring for UPI.
- **Data protection:** The Digital Personal Data Protection Act, 2023, and Digital Personal Data Protection Rules, 2025, establish safeguards for personal data and digital-finance users.
- **Regulatory Sandbox:** RBI introduced this framework in August 2019 to test innovative financial products and services under controlled regulatory supervision.
- **Digital lending protection:** RBI's Digital Lending Apps (DLA) directory, the National Cybercrime Reporting Portal and helpline 1930 help address fraudulent lending and cybercrime. The SACHET portal enables reporting of illegal deposit-taking.

- **Industry self-regulation:** RBI's Framework for Self-Regulatory Organisation(s) in the FinTech Sector (SRO-FT), 2024 promotes ethical conduct, market integrity and effective grievance redressal.

Present Issues in India's FinTech Sector

- **Digital payment frauds:** RBI reported 13,516 card/internet fraud cases in 2024-25, highlighting persistent phishing, social engineering and unauthorised transactions.
- **Predatory digital lending:** The RBI Digital Lending Directions, 2025 address exorbitant interest rates, mis-selling, privacy breaches and coercive recovery by lending-service providers.
- **Data privacy and cybersecurity:** RBI identifies third-party technology risks, cyberattacks and data misuse as major concerns amid expanding financial digitalisation.
- **Digital divide:** Limited digital literacy, unreliable connectivity and biometric-authentication failures can exclude rural users, elderly citizens and informal-sector workers from fintech services.
- **Algorithmic and systemic risks:** AI-driven credit scoring, opaque decisions, cloud concentration and interconnected platforms can amplify discriminatory lending, operational disruptions and financial-stability risks.

Way Forward

- **Strengthen fraud protection:** Operationalise faster complaint resolution, AI-based fraud detection and proportionate compensation for eligible victims of unauthorised digital transactions.
- **Enforce responsible digital lending:** Implement RBI's Digital Lending Directions, 2025, verify apps through its DLA directory and strengthen oversight of lending-service providers.
- **Improve cyber resilience:** Enforce RBI's 2024 Cyber Resilience Directions for non-bank payment operators, including phased compliance, incident reporting and third-party risk management.
- **Strengthen regulatory coordination:** Empower fintech self-regulation under RBI's 2024 SRO-FT framework, coordinating RBI, SEBI and other regulators on emerging technology risks
- **Deepen inclusive digital finance:** Implement RBI's National Strategy for Financial Inclusion 2025-30 through local-language financial literacy, assisted digital payments and accessible grievance-redress mechanisms.

Conclusion: India's fintech ecosystem must balance innovation with robust safeguards to ensure inclusive growth, responsible technology and resilient digital finance.

Test Your Knowledge	
<div style="text-align: center;">  Prelims Corner </div> <p>With reference to India's FinTech ecosystem, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Unified Payments Interface (UPI) enables interoperable, real-time digital payments through a common platform. 2. The RBI Regulatory Sandbox permits fintech firms to test innovative financial products under controlled regulatory conditions. 3. The JAM Trinity comprises Jan Dhan accounts, Aadhaar and mobile connectivity, and is primarily designed to facilitate digital financial inclusion. 4. The Open Network for Digital Commerce (ONDC) is restricted to digital payment services and does not extend to other categories of commerce. <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 1, 2 and 3 only (c) 2, 3 and 4 only (d) 1, 2, 3 and 4</p> <p>Answer: (b) 1, 2 and 3 only</p>	<div style="text-align: center;">  Mains Corner </div> <p>Q. India's FinTech ecosystem, built on Digital Public Infrastructure (DPI), has significantly advanced financial inclusion and efficiency, but also presents new challenges relating to data protection, cyber security and consumer protection. Examine.</p> <p>(15 marks, 250 words)</p>

5. INDIA–EUROPEAN UNION FREE TRADE AGREEMENT: COPYRIGHT CONCERNS

Context: The European Commission sought approval to sign and conclude the India–European Union (EU) Free Trade Agreement (FTA), highlighting concerns over its Intellectual Property Rights (IPR) provisions and potential effects on India's Copyright Act, 1957, education, research and digital businesses.

Key Concerns in the Draft Intellectual Property Chapter

- **Restrictive three-step test:** An EU-style test could narrow copyright exceptions for public-interest uses, unlike India's specific statutory exceptions.
- **World Intellectual Property Organisation (WIPO) Copyright Treaty (WCT):** Strict enforcement without extending treaty exceptions to India under National Treatment could weaken Section 52 of the Copyright Act, 1957, which permits fair dealing for education, research and lawful digital uses.
- **Digital locks:** Proposed Trade-Related Aspects of Intellectual Property Rights (TRIPS)-Plus rules on Technological Protection Measures (TPMs) could **weaken Section 65A** safeguards for **lawful circumvention by students, researchers and librarians**, affecting cybersecurity testing, software compatibility and digital preservation.
- **Temporary copies:** Broad rights over temporary and permanent copies could conflict with the WCT's treatment of certain transient network copies.

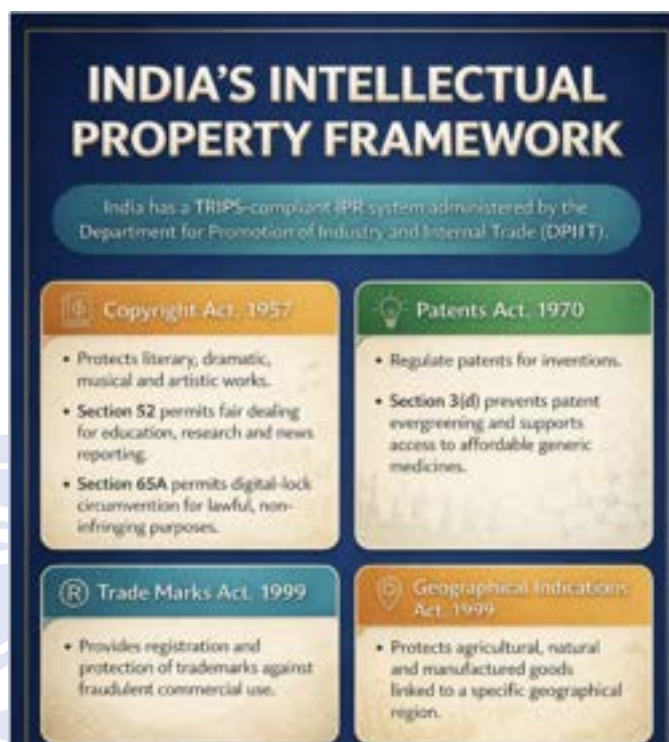


Possible Implications for India

- **Digital businesses:** Internet intermediaries and technology firms may face costly litigation over routine temporary data caching during digital transmission.
- **Academic freedom:** Students, teachers and researchers could face legal or criminal liability for legitimate data extraction and software reverse-engineering.
- **Unequal litigation:** Better-resourced European rightsholders could place Indian universities, libraries and intermediaries at a disadvantage in prolonged disputes.

India's Intellectual Property Framework

- **WIPO Internet Treaties:** India joined the WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT) in 2018.
- **WCT:** Protects literary and artistic works, including writings, computer programs, original databases, music, audiovisual works and photographs in digital environments.
- **WPPT:** Protects performers, including actors and musicians, and phonogram producers.



Way Forward

- **Preserve copyright exceptions:** Seek to extend WCT protections and exceptions under National Treatment to safeguard education and affordable digital access.
- **Protect legitimate research:** Retain the intent-based approach under Section 65A, distinguishing piracy from lawful academic research, cybersecurity testing and software compatibility.
- **Safeguard digital activities:** Preserve lawful TPM circumvention for security research, interoperability and digital preservation, alongside appropriate safe-harbour protection for Internet service providers.
- **Avoid excessive TRIPS-Plus obligations:** Remain aligned with the World Trade Organisation (WTO) TRIPS baseline to protect digital sovereignty, affordable knowledge access and domestic innovation.

Conclusion: The India-EU FTA must balance trade and innovation with public interest, preserving legitimate copyright exceptions, research freedom, digital sovereignty and equitable access to knowledge.

Test Your Knowledge	
Prelims Corner <p>Q. With reference to the Intellectual Property Rights provisions discussed in the India-EU Free Trade Agreement, consider the following statements:</p> <ol style="list-style-type: none"> The draft agreement proposes an EU-style three-step test to limit copyright exceptions. Section 65A of the Copyright Act, 1957 permits circumvention of technological protection measures for certain lawful, non-infringing purposes. India joined the WIPO Copyright Treaty and WIPO Performances and Phonograms Treaty in 2018. <p>Which of the statements given above is/are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: D. 1, 2 and 3</p>	Mains Corner <p>Q. The India-EU Free Trade Agreement seeks to deepen economic integration but raises concerns over intellectual property rights and India's regulatory policy space. Examine the key challenges posed by the proposed copyright provisions, particularly for education, research and the digital economy.</p> <p>(15 marks, 250 words)</p>

6. RISING DIGITAL FRAUDS AND THE CHALLENGE OF CYBER JUSTICE

Context: The National Crime Records Bureau (NCRB) recorded a 17.9% rise in cybercrime cases in 2024, despite a 6% decline in overall registered crime. The Status of Policing in India Report (SPIR) 2026 highlights growing cyber fraud and barriers to justice.

Cyber-Law Framework and Institutions

- **Information Technology Act, 2000:** Addresses identity theft, online impersonation and other cyber offences; Section 70A provides for protecting critical information infrastructure through a national nodal agency.
- **IT Rules, 2021:** The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules strengthen intermediary accountability and prescribe due diligence and content-related obligations.
- **Digital Personal Data Protection Act, 2023:** Establishes obligations for lawful personal-data processing and security safeguards.
- **Promotion and Regulation of Online Gaming Act, 2025:** Promotes e-sports while prohibiting online money gaming and related promotional and financial activities.
- **Indian Computer Emergency Response Team (CERT-In):** Monitors cyber threats, identifies vulnerabilities and coordinates incident responses.
- **Indian Cyber Crime Coordination Centre (I4C):** Facilitates information sharing and coordination among cybercrime law-enforcement agencies.
- **National Critical Information Infrastructure Protection Centre (NCIIPC):** Protects Critical Information Infrastructure (CII) across sectors such as banking, telecommunications, power and transport.

Barriers to Effective Cyber Justice

- **Under-reporting:** Complex procedures and low institutional trust discourage reporting and cause victims to withdraw complaints.
- **Unequal access:** Rural, female and economically weaker victims face procedural delays; bribery and personal connections create unequal access to police assistance and fund recovery.
- **Missed golden hour:** Delayed coordination between police and banks allows fraudsters to withdraw funds before freezing orders take effect.
- **Jurisdictional mismatch:** Territorial policing struggles against cross-border cybercrime involving VoIP, Virtual Private Networks (VPNs) and international syndicates.
- **Weak grassroots forensics:** Police stations often lack digital-forensic expertise, blockchain-tracing skills and electronic-evidence preservation capacity, weakening prosecutions under the Bharatiya Sakshya Adhiniyam (BSA), 2023.

Measures for Stronger Cyber Justice

- **Time-bound reporting:** Ensure mandatory, time-bound registration of First Information Reports (FIRs) to reduce arbitrary police discretion.
- **Predictive prevention:** Expand the Financial Fraud Risk Indicator (FRI) to identify high-risk mobile numbers and prevent suspicious transactions.
- **Real-time coordination:** Establish standard operating procedures linking I4C, the Reserve Bank of India (RBI), banks and telecom providers for rapid fund freezing.
- **Strengthen response systems:** Upgrade the 1930 Cybercrime Helpline and National Cyber Crime Reporting Portal to enable faster reporting and transaction blocking.
- **Targeted awareness:** Educate citizens about psychological manipulation, impersonation, fraudulent investments and other specific scam techniques.
- **Rapid content removal:** Strengthen the Sahyog Portal to expedite action against phishing links, malicious applications and fraudulent content.
- **Police accountability:** Introduce internal vigilance audits and automated fund-recovery tracking to reduce corruption and improve transparency.
- **Grassroots capacity:** Equip police stations with digital-forensic tools, trained personnel and standardised electronic-evidence handling procedures.



Conclusion: India's digital transformation must be matched by proactive cyber justice, inclusive digital literacy and responsive institutions to build a secure and trusted digital ecosystem.

Test Your Knowledge

Prelims Corner

With reference to cybercrime prevention and institutional mechanisms in India, consider the following statements:

1. The Indian Cybercrime Coordination Centre (I4C) facilitates real-time coordination among law-enforcement agencies.
2. The National Critical Information Infrastructure Protection Centre (NCIIIPC) is responsible for protecting critical information infrastructure.
3. CERT-In primarily focuses on investigating individual cybercrime complaints and registering First Information Reports (FIRs).

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (a) 1 and 2 only

Mains Corner

Q "The borderless nature of cybercrime has exposed the limitations of India's traditional, jurisdiction-bound policing and justice mechanisms." Discuss the key challenges in ensuring cyber justice in India and suggest measures to strengthen an accountable and proactive cybercrime response.

(15 marks, 250 words)

7. RISING HOUSEHOLD DEBT IN INDIA AND ITS IMPLICATIONS

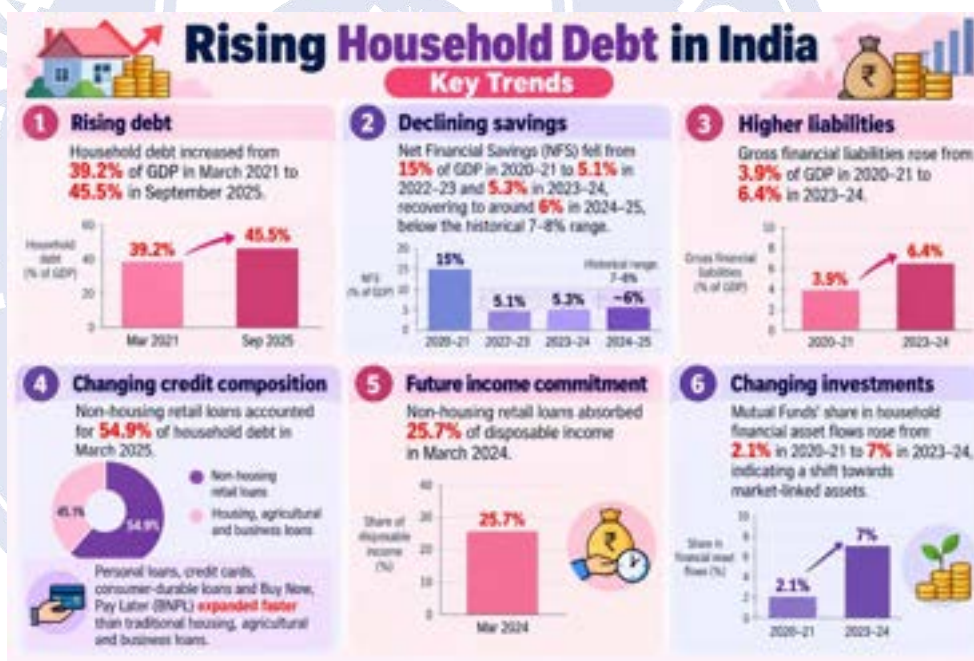
Context: Rising household debt and declining net financial savings raise concerns about credit-led consumption and dependence on future income.

Reasons for Rising Household Debt

- **Easy digital credit:** Fintech platforms, instant loans and BNPL have blurred the distinction between affordability and credit availability.
- **Weak real wage growth:** Stagnant incomes, especially among informal and entry-level workers, encourage borrowing to meet living expenses.
- **Inadequate social protection:** Healthcare, education, rent and elderly-care expenses increase borrowing.
- **Changing consumption patterns:** Rising aspirations and lifestyle spending have normalised debt-funded consumption.

Economic Implications

- **Lower investment:** Reduced household savings limit funds available for government borrowing and corporate investment, potentially slowing Gross Capital Formation and infrastructure expansion.
- **Debt trap:** Higher Equated Monthly Instalments (EMIs) reduce disposable income and may trigger repeated borrowing. Average borrower debt reportedly rose 23% between 2023 and 2025.



- **K-shaped inequality:** Lower-income households borrow for essential needs, while wealthier households accumulate financial assets. Debt repayments can also reduce spending on education and nutrition.
- **Financial sector risks:** Rising unsecured retail lending increases the risk of Non-Performing Assets (NPAs) for banks and Non-Banking Financial Companies (NBFCs), particularly when borrowers have unstable incomes.
- **External vulnerability:** Lower domestic savings may increase dependence on foreign capital and pressure the Current Account Deficit (CAD). Foreign Portfolio Investors (FPIs) withdrew a reported ₹1.66 lakh crore in 2025, exposing vulnerability to capital outflows.
- **Informal-sector vulnerability:** The Reserve Bank of India (RBI) Annual Report 2024–25 highlights uneven income growth, with gains concentrated in the formal sector. Informal workers face greater repayment difficulties due to volatile incomes.
- **Credit without welfare gains:** Borrowing may postpone rather than resolve income constraints. In November 2023, the RBI increased risk weights on consumer credit to moderate aggressive unsecured lending.
- **Monetary policy transmission:** High household leverage makes consumption more sensitive to interest-rate changes through EMIs and debt-servicing costs.
- **Gold-backed borrowing risks:** Rising gold prices increase collateral values and borrowing capacity but do not improve income or repayment ability.

Policy Measures

- **Promote productive credit:** Encourage wealth-generating housing, education and Micro, Small and Medium Enterprises (MSME) loans while curbing high-cost consumption credit through appropriate risk weights.
- **Strengthen lending safeguards:** Introduce Debt-to-Income (DTI) limits, early-warning mechanisms and stricter oversight of algorithm-driven and pre-approved unsecured loans.
- **Boost real wages:** Generate stable formal employment and strengthen manufacturing through Production Linked Incentive (PLI) schemes.
- **Rebuild financial savings:** Promote low-cost financial advice and long-term, inflation-beating investments through Equity-Linked Savings Schemes (ELSS) and Systematic Investment Plans (SIPs).
- **Expand social security:** Improve healthcare coverage, education support, employment security and protection against income shocks to reduce distress borrowing.

Conclusion: Sustainable household finance requires responsible lending, stronger savings, inclusive income growth and adequate social protection, ensuring that present consumption does not undermine future financial security.

Test Your Knowledge	
<p>Prelims Corner</p> <p>With reference to household debt and savings in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. A rise in household debt accompanied by declining net financial savings can constrain funds available for investment. 2. A shift towards unsecured retail credit can increase financial-system vulnerability to income shocks. 3. Higher household leverage can strengthen the transmission of monetary policy through changes in Equated Monthly Instalments (EMIs). <p>Which of the statements given above are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: D. 1, 2 and 3</p>	<p>Mains Corner</p> <p>Q. Rising household indebtedness alongside declining net financial savings can create vulnerabilities for both household welfare and macroeconomic stability. Discuss the causes, implications and policy measures needed to address this trend in India.</p> <p>(15 marks, 250 words)</p>

8. BHARAT MARITIME INSURANCE POOL (BMIP)

Context: World Maritime Day 2026, observed on 24 September, had the theme “From Policy to Practice: Powering Maritime Excellence.” The Bharat Maritime Insurance Pool (BMIP) strengthens maritime resilience and reduces dependence on foreign insurers.

India's Maritime Sector

- **Trade dependence:** About 95% of India's trade by value and 70% by volume moves through maritime routes, supporting trade and energy security.
- **Coastline and ports:** India has a coastline of 11,098 km, 12 Major Ports and 217 Non-Major Ports, handling nearly 1,668 million metric tonnes of cargo in 2025–26.
- **Exclusive Economic Zone (EEZ):** India's 2.4 million square kilometre EEZ supports fisheries and marine resource security.
- **Inland waterways:** Over 14,500 km of waterways offer cost-effective freight transport.
- **Livelihoods:** The maritime sector supports over 30 million people.
- **Foreign insurance dependence:** India spends around USD 45–60 million annually on Protection and Indemnity (P&I) premiums, besides other marine insurance payments.

Why India Needs BMIP

- **Growing shipping sector:** By mid-2026, India had 1,609 ships with 14.33 million Gross Tonnage (GT), with tonnage growing around 36% since 2015.
- **Foreign P&I dependence:** The 13 international P&I clubs under the International Group of P&I Clubs insure nearly 90% of the world's large ships. Dependence exposes Indian shipping to coverage withdrawals, higher premiums and foreign decisions.
- **Geopolitical disruptions:** Instability in the Red Sea and Strait of Hormuz increases shipping risks and insurance costs, threatening trade and energy security.
- **Limited domestic expertise:** BMIP develops indigenous marine underwriting and claims-management capabilities.
- **Insurance continuity:** Domestic, sovereign-backed coverage improves affordability and reliability during global disruptions.



Impact and Significance

- **Rapid expansion:** By 7 September 2026, BMIP had issued 3,000 Cargo War, 92 Hull War-risk and 3 P&I policies.
- **Lower premiums:** War-risk coverage remained uninterrupted, with premiums falling around 35–40% from their peak during the West Asia conflict.
- **First Hull and Machinery War-risk policy:** Issued on 12 May 2026 to Hoger Offshore and Marine Private Limited for a vessel operating in conflict zones.
- **First P&I policy:** Issued on 30 July 2026 by New India Assurance Company Limited to the Shipping Corporation of India Limited, covering third-party liabilities.
- **Industrial trade protection:** Marine Cargo War insurance for Vedanta Sterlite Copper Limited supports critical imports. Coverage has also extended to Balrampur Chini Mills Limited.
- **Strategic benefits:** Reduces foreign-insurer dependence, strengthens domestic insurance capacity and protects trade and energy supply chains.

Conclusion: BMIP strengthens India's maritime resilience, strategic autonomy and domestic insurance capacity, safeguarding trade and energy flows while supporting the blue economy and global maritime competitiveness.

Test Your Knowledge

<div style="display: flex; align-items: center;"> Prelims Corner </div>	<div style="display: flex; align-items: center;"> Mains Corner </div>
<p>Question: With reference to the Bharat Maritime Insurance Pool (BMIP), consider the following statements:</p> <ol style="list-style-type: none"> 1. It covers Hull and Machinery, Cargo, Protection and Indemnity, and War risks. 2. The General Insurance Corporation of India (GIC Re) serves as its Pool Administrator. 3. Claims exceeding USD 100 million are settled through the sovereign guarantee before exhausting the Pool's reserves. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Answer: (a) 1 and 2 only</p>	<p>"Q. Maritime insurance is crucial for safeguarding India's trade and energy security amid growing geopolitical uncertainties." Examine the significance of the Bharat Maritime Insurance Pool (BMIP) in strengthening India's maritime resilience and strategic autonomy. (15 marks, 250 words)</p>

9. FINANCIAL STABILITY IN AN AGE OF FLUX

Context: At the 5th Kautilya Economic Conclave in New Delhi, themed "Resilience in an Age of Flux," the Reserve Bank of India (RBI) Governor outlined five priorities for financial stability amid global uncertainty.

Emerging Global Risks

- **Sovereign debt and carry trades:** High debt-to-GDP ratios, shorter maturities and rising bond yields in advanced economies increase vulnerabilities. US debt exceeds 120% of GDP. Unwinding carry trades (borrowing in low-interest currencies to invest elsewhere) may trigger capital outflows from India, Brazil and Indonesia.
- **AI-driven market risks:** Slower AI investment or earnings could trigger widespread asset repricing, affecting Taiwan's semiconductor industry and South Korea's memory-chip exports.

- **Shadow banking leverage:** Rising leverage among hedge funds, ETFs and private equity firms could transmit market stress to banks. The UK's 2022 Liability-Driven Investment (LDI) crisis exposed risks to pension funds.
- **Private credit stress:** Rising defaults and Payment-in-Kind (PIK) arrangements, where interest is paid through additional debt instead of cash, signal weakening lending standards.
- **Geopolitical and cyber risks:** West Asian conflicts disrupting Red Sea-Suez Canal trade, US-China technological decoupling and AI-driven cyberattacks threaten financial and critical infrastructure.



Financial Stability Risks in India

- **Unsecured retail credit:** Algorithm-based instant loans and Buy Now, Pay Later (BNPL) schemes are growing rapidly. Borrowers below 25 have disproportionately high fresh delinquency rates; economic shocks and job losses could increase retail NPAs.
- **Futures and Options (F&O) speculation:** Rising retail participation and high mid- and small-cap valuations increase investor-loss risks and weaken confidence after market corrections.
- **Fintech and cyber risks:** India's 87% fintech adoption rate increases dependence on third-party platforms, exposing banks to cyberattacks, data breaches, API vulnerabilities and technology failures.
- **Deposit and margin pressure:** Declining low-cost Current Account and Savings Account (CASA) deposits raise funding costs. To preserve Net Interest Margins (NIMs), banks may shift towards riskier, higher-yield lending.
- **Gold-loan vulnerability:** Gold loans grew at a 42.4% CAGR since March 2024, exceeding ₹5.14 lakh crore in May 2026. Falling gold prices could reduce collateral values and increase losses for banks and NBFCs.

Measures to Strengthen Financial Stability

- **Macroprudential regulation:** Maintain appropriate higher risk weights on unsecured retail credit and NBFC exposures to curb excessive lending.
- **Control F&O speculation:** SEBI should strengthen PAN-level position limits, monitor delta-adjusted exposures and restrict high-risk zero-day-to-expiry index options.
- **Improve bank liquidity:** Mobilise low-cost CASA deposits and ensure Liquidity Coverage Ratio (LCR) compliance to withstand liquidity shocks.
- **Strengthen cybersecurity:** Deploy technology-based fraud detection, including RBIH's MuleHunter.ai, to combat digital fraud and money-mule networks.
- **Manage sovereign debt:** Apply the World Bank's Three-Pillar Approach—domestic resource mobilisation, external financial support and risk-sharing instruments—alongside faster debt restructuring under the G20 Common Framework.

- **Build external buffers:** Maintain adequate foreign exchange reserves against capital outflows and promote local-currency trade settlements to reduce external monetary volatility.

Conclusion: Financial stability requires proactive regulation, granular risk monitoring, cybersecurity and adequate financial buffers. Institutional trust and system-wide resilience are essential to navigate global volatility and sustain inclusive growth.

Test Your Knowledge

Prelims Corner

With reference to financial stability in India, consider the following statements:

1. Countercyclical macroprudential measures can be used to contain excessive credit expansion.
2. A decline in CASA deposits can increase banks' funding costs and put pressure on their net interest margins.
3. A sharp fall in gold prices can increase credit risk associated with gold loans by reducing collateral values.
4. Financial-system resilience is limited to the banking sector and does not extend to payment systems or critical technology infrastructure.

Which of the statements given above are correct?

A. 1, 2 and 3 only
B. 1 and 4 only
C. 2 and 3 only
D. 1, 2, 3 and 4

Answer: A

Mains Corner

Q. Financial stability in India is increasingly exposed to interconnected risks arising from fintech, unsecured credit, market speculation and global financial spillovers. Examine the major emerging risks and suggest measures to strengthen India's macroprudential resilience. (15 marks, 250 words)

10. WORLD DEVELOPMENT REPORT 2026

Context: MeitY launched the World Bank Group's World Development Report 2026: The Promise of Artificial Intelligence under the IndiaAI Mission. It was globally released in August 2026.

Key Findings

- **Faster diffusion and unequal adoption:** AI spreads faster than earlier General-Purpose Technologies (GPTs); ChatGPT received 50% of its traffic from middle-income countries within six months. By April 2025, adoption among internet users was 25% in high-income, 5.8% in upper-middle-income, 4.7% in lower-middle-income and 0.7% in low-income economies. Benefits require supporting infrastructure and large-scale applications.
- **Three Factors Shaping AI's Development Impact**
 - **Concentration:** Advanced computing, chip design and frontier models remain concentrated in the US and China; leading US tech firms were projected to spend over USD 750 billion on AI infrastructure in 2026.
 - **Capabilities:** AI can improve disease diagnosis, weather forecasting and agricultural advice, addressing specialist shortages.
 - **Complements:** Reliable electricity, internet, education and strong institutions are essential. In Sub-Saharan Africa (2024), 32% of rural schools lacked electricity, 68% lacked internet and 89% of 10-year-olds struggled with basic reading.
- **Small AI for Developing Economies:** Affordable, compact models: Small AI delivers public services with limited computing resources; India's Wadhvani AI Cough Against TB achieves 90% screening accuracy, while Ghana's Rori provides a year of educational gains for approximately USD 5 per student.
- **Economic and Employment Effects:** Employment and resource pressures: Generative AI could automate 4.5% of jobs in developing countries versus 14.2% in high-income economies, while productivity gains remain concentrated in advanced economies. Outsourced BPO gigs declined 39% in 2025, and data centres strain local electricity and water resources.

- **AI in Governance and Public Services:** AI has been used to allocate over 10,000 court disputes in Kenya, support agricultural forecasting in India and increase daily diabetic eye screenings by 40% in Bangladesh. Telangana's AI-based weather forecasts saved up to USD 560 per small farmer, while failed automated cash-transfer systems exposed risks from poor data and unsuitable applications.
- **Geopolitical Dependence and Information Integrity:** Open-source models and shared regional computing can reduce dependence on costly domestic AI development; Kenyan data labellers earn USD 1.32–2 per hour, while Africa has only 66 fact-checking organisations for 1.5 billion people, limiting disinformation control.
- **Uneven AI Preparedness:** Over 80 countries had announced national AI strategies by mid-2026, but Rwanda was the only low-income country among 25 countries with an official AI policy framework.

Key Recommendations

- **Adopt, Adapt, Advance**
 - **Adopt:** Deploy existing open-source and commercial AI for immediate needs, including administrative sorting and translation.
 - **Adapt:** Localise models for languages, agriculture, climate and healthcare; develop multimodal, voice-based services compatible with affordable 2G networks and feature phones.
 - **Advance:** Prioritise affordable, compact Small AI over resource-intensive frontier models.
- **Strengthen Government Support and Infrastructure**
 - **Computing and data:** Expand computing access through Compute-as-a-Service and quality public datasets through open-data repositories.
 - **Digital foundations:** Ensure reliable electricity, affordable broadband, digital literacy and foundational education; align labour and taxation policies to mitigate premature job displacement.
- **Scale AI in Public Services:** Replace fragmented pilots with evaluated, scalable solutions; use public procurement to expand domestic AI in agriculture, healthcare, education and social protection, supported by clean, standardised, AI-ready government datasets integrated with Digital Public Infrastructure (DPI).
- **Adopt Flexible, Risk-Based Regulation:** Begin with voluntary standards, algorithmic impact assessments and independent audits; enforce existing consumer protection, competition, data protection and cybersecurity laws against AI-enabled fraud, deepfakes and discrimination, while promoting international coordination and cross-border interoperability.
- **Reduce Inequality and Disinformation:** Develop shared regional computing clusters through multilateral partnerships, ensure fair wages and labour protections for data annotation and content moderation workers, and strengthen media literacy, fact-checking and synthetic-media watermarking.

Conclusion: Realising AI's development potential requires inclusive digital infrastructure, locally adapted solutions, stronger human capabilities and accountable governance to bridge technological divides and ensure equitable growth.

Test Your Knowledge	
<p>Prelims Corner</p> <p>Question: With reference to the World Development Report 2026: The Promise of Artificial Intelligence, consider the following statements:</p> <ol style="list-style-type: none"> 1. The report recommends that developing countries prioritise adapting existing AI models to local needs rather than building frontier AI models from scratch. 2. The report identifies reliable electricity, broadband connectivity and foundational education as essential complements to AI adoption. 3. The report recommends that governments rely exclusively on voluntary standards for AI regulation. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Answer: (a) 1 and 2 only</p>	<p>Mains Corner</p> <p>"Q. Artificial Intelligence can accelerate inclusive development, but its benefits depend on digital infrastructure, institutional readiness and effective governance." Discuss in the context of the World Development Report 2026.</p> <p>(15 marks, 250 words)</p>

11. GLOBAL INITIATIVE ON AI FOR AGRI-FOOD SYSTEMS (GI-AI4FS)

Context: The second meeting of the United Nations Global Initiative on Artificial Intelligence for Agri-Food Systems (GI-AI4FS) was held during India Mobile Congress (IMC) 2026 in New Delhi, jointly organised by the Telecommunication Engineering Centre (TEC) and Indian Council of Agricultural Research (ICAR).

Major AI-Enabled Agricultural Initiatives

- **AgriStack:** Creates digital Farmer IDs linked to land, livestock and crop records. Over 7.63 crore IDs have been generated against a target of 11 crore by 2026–27. The Digital Crop Survey covered 23.5 crore plots during Rabi 2024–25.
- **Krishi Decision Support System (KDSS):** Integrates satellite imagery, weather and soil data for crop mapping, yield estimation and drought assessment. The Soil and Land Use Survey of India (SLUSI) has mapped 29 million hectares for this purpose.
- **Bharat-VISTAAR:** Proposed in Union Budget 2026–27, the Virtually Integrated System to Access Agricultural Resources is a multilingual AI platform integrating AgriStack and agricultural packages developed by ICAR.
- **Kisan e-Mitra:** Voice-enabled AI chatbot operating in 11 regional languages. By December 2025, it had answered over 93 lakh queries, averaging around 8,000 daily, including queries on PM-KISAN and PMFBY.
- **Nationwide Soil Resource Mapping Project:** SLUSI aims to develop village-level soil inventories at 1:10,000 scale. Around 29 million hectares have been mapped across six funded states against a target of 142 million hectares.
- **Agri-tech startups:** Under Rashtriya Krishi Vikas Yojana (RKVY), Knowledge Partners and RKVY Agri-business Incubators provide up to ₹5 lakh at the idea stage and ₹25 lakh at the seed stage. A total of 2,282 agricultural startups have received support for AI, drones, robotics and related innovations.



IMPACT AI Framework

Introduced in the October 2025 Future Farming in India: AI Playbook for Agriculture, developed with the World Economic Forum (WEF), IndiaAI and Boston Consulting Group (BCG).

- **Enable:** Establish AI strategies, supportive policies and digital public infrastructure such as AgriStack.
- **Create:** Promote collaboration among startups, technology providers and ICAR to develop locally suitable AI **solutions**.
- **Deliver:** **Integrate** AI into agricultural extension and use field feedback to reach small and marginal farmers.

Challenges in AI Adoption

- **Smallholder data gaps and algorithmic bias:** Around 86% of Indian agricultural landholdings are small or marginal, below two hectares. Models trained on large, mechanised farms may not suit fragmented holdings, mixed cropping and rain-dependent microclimates.
- **Trust and information overload:** Multiple platforms and uncertainty about new technologies discourage adoption without field-level validation.
- **Incomplete land records:** Despite digitisation of 97.4% of cadastral maps, outdated spatial records, tenancy disputes and unclear land titles hinder reliable integration under the Digital India Land Records Modernization Programme (DILRMP).
- **Data sovereignty:** Weak agricultural data protection could enable exploitative pricing and discriminatory credit assessments.
- **High costs:** Sensors, drones and autonomous machinery remain expensive for small farmers.
- **Environmental costs:** AI data centres could consume an estimated 9.3 trillion litres of water annually by 2030. AI hardware could generate 2.5 million tonnes of electronic waste annually, risking soil and groundwater contamination.

Measures for Inclusive AI-Driven Agriculture

- **Farming-as-a-Service (FaaS):** Expand affordable, pay-per-use access to machinery through Custom Hiring Centres (CHCs), Farmer Producer Organisations (FPOs) and Kisan Drones. Women's Self-Help Groups (SHGs) can provide drone services.
- **Phyigital extension:** Combine digital advice with direct farmer interaction through Krishi Vigyan Kendras (KVKs). Equip community workers, including Krishi Sakhis under the Lakhpati Didi initiative, with AI-enabled diagnostic tablets.
- **Digital infrastructure:** Accelerate AgriStack and Digital Crop Survey implementation across districts.
- **Capacity building:** Train agricultural extension workers to interpret AI insights and provide locally relevant advice.
- **International cooperation:** Use GI-AI4FS to share open-source AI models and develop international agricultural data-governance standards.
- **Data protection:** Extend the Data Empowerment and Protection Architecture (DEPA) to agriculture, enabling consent-based access to farm data, secure sharing with verified startups and protection against corporate monopolisation.

Conclusion: Farmer-centric AI, affordable technology, strong data protection and international cooperation can advance precision farming, climate resilience, inclusive rural growth and sustainable food security.

Test Your Knowledge	
<p>Prelims Corner</p> <p>Consider the following statements regarding the Global Initiative on AI for Agri-Food Systems (GI-AI4FS):</p> <ol style="list-style-type: none"> 1. It is a United Nations-backed multilateral platform coordinated by the International Telecommunication Union (ITU) in partnership with the FAO, IFAD and WFP. 2. Bharat-VISTAAR is a multilingual AI tool designed to integrate AgriStack portals and ICAR agricultural packages into a unified advisory system. 3. The National Pest Surveillance System uses AI to support crop protection across 66 crops and more than 432 pest types. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (d) 1, 2 and 3</p>	<p>Mains Corner</p> <p>"Artificial Intelligence has the potential to transform Indian agriculture, but its benefits depend on inclusive access, data protection and sustainable implementation." Discuss the role of AI in enhancing agricultural productivity and resilience in India. Examine the key challenges and suggest measures to ensure farmer-centric adoption. (15 marks, 250 words)</p>

12. POINTERS FOR PRELIMS

12.1. FIRST MEETING OF DCTI AND THE KASTURI COTTON BHARAT INITIATIVE

Context: The Development Council for Textile Industry (DCTI) held its first meeting in New Delhi alongside the expansion of the Kasturi Cotton Bharat initiative, reflecting India's efforts to build a globally competitive, sustainable and traceable textile value chain.

Development Council for Textile Industry (DCTI)

- **About:** The DCTI is a high-level advisory body established by the Ministry of Textiles. It brings together government, academia and industry stakeholders to strengthen India's position in the global textile market.
- **Priority Areas:** The council has formed dedicated working groups on:
 - Production and productivity
 - Research and Development (R&D)
 - Exports and market access
 - Raw material availability
 - Investment, skilling and sustainability
- **Integrated Value Chain:** It promotes the vision of "Farm to Fibre, Fibre to Factory, Factory to Fashion, and Fashion to Foreign" to

address supply-chain bottlenecks across the textile industry.

Kasturi Cotton Bharat Initiative

- **Objective:** Launched as India's premium cotton brand, the initiative seeks to establish a distinct global identity for Indian cotton, comparable to premium varieties such as SUPIMA cotton from the United States and Giza cotton from Egypt.
- **Implementation:** The initiative is jointly implemented by the Cotton Corporation of India (CCI) and the Cotton Textiles Export Promotion Council (TEXPROCIL), based on industry self-regulation.
- **Quality Certification:** Kasturi Cotton Bharat bales must meet strict standards for fibre length and low contamination. Certification by National Accreditation Board for Testing and Calibration Laboratories (NABL)-accredited laboratories is mandatory.
- **Indian Origin:** The brand guarantees Indian origin. Imported cotton cannot be marketed as Kasturi Cotton, safeguarding the identity of domestic cotton farmers and producers.

Note: For more information on the cotton sector in India, please refer to the 2nd article under the Economy section of the August magazine

12.2. STRATEGY FOR ENVIRONMENTAL-ECONOMIC ACCOUNTS IN INDIA 2026–2030

Context: MoSPI, through the NSO, released a roadmap to improve environmental accounting, data quality, coverage and accessibility.

Key Features

- **Continuity:** Builds on the 2022–2026 strategy covering Material Flow, Ocean, Energy, biodiversity and urban accounts.
- **Framework:** Follows the UN-endorsed System of Environmental-Economic Accounting (SEEA), integrating environmental and economic data to assess natural resources, ecosystems and economic activities. Guided by Green National Accounts in India: A Framework and the SEEA Central Framework (SEEA-CF).

- **Coverage:** Forests, minerals, soil, land, water, carbon stocks, biodiversity, environment-related activities and environmental statistics.
- **Strategic Priorities:** Fill data gaps, standardise methods and improve data quality, timeliness and comparability; enhance accessibility, awareness and use among policymakers and stakeholders.
- **National Accounts Integration:** Complements the System of National Accounts (SNA) 2025, which strengthens the inclusion of natural resources and non-produced assets in national wealth accounting.

Significance

- **Evidence-based policymaking:** Assesses links between economic growth, resource use and environmental sustainability.
- **State-level accounting:** Guides States and UTs in developing or strengthening environmental accounts.
- **Sustainable development:** Supports resource management, identification of data gaps and monitoring of sustainability policies and commitments.

12.3. NATIONAL PIPED NATURAL GAS (PNG) DRIVE 3.0

Context: The Petroleum and Natural Gas Regulatory Board (PNGRB) launched PNG Drive 3.0 on 1 October 2026, its 20th Foundation Day, to promote the shift from LPG to PNG and strengthen energy security.

Targets and Progress

- **Targets:** FY 2026–27 aims for 50 lakh new domestic PNG connections, activation of 40 lakh previously unbilled connections and 50 lakh additional registrations.
- **Achievements:** PNG Drive 2.0 (January–June 2026) achieved 12.10 lakh new connections, 13.37 lakh billed connections and 15.31 lakh registrations.

Energy Security and Geopolitics

- **Sustainability:** Promotes cleaner household fuel and energy diversification; natural gas contributes around 6% of India's primary energy mix. Supports net-zero commitments and SDGs.

- **Supply Risks:** West Asia tensions threaten LPG supplies through critical maritime routes, particularly the Strait of Hormuz. PNG diversification reduces exposure to disruptions.

Incentives and Infrastructure

- **Gas Incentive:** The Petroleum Ministry provides 200 additional SCM of lower-priced APM natural gas per additional billed domestic PNG connection to incentivise City Gas Distribution (CGD) companies.
- **Pipeline Capacity:** Existing gas pipelines span 6.9 lakh inch-kilometres, with potential to support another 1.3 crore connections.

Key Challenges

- **Billing Gap:** PNG Drive 2.0 revealed a gap between households connected to PNG networks and those actively receiving bills.
- **Expansion Needs:** Improve affordability and awareness in emerging Geographical Areas (GAs) and strengthen customer engagement in established markets.

12.4. INDIA AND MALI COMMEMORATE WORLD COTTON DAY 2026

Context: India and Mali jointly organised a World Cotton Day event at the United Nations Headquarters in New York under the theme “Cotton for Sustainability: Livelihoods, Value Addition and Partnership.”

- **World Cotton Day:** The United Nations General Assembly **designated 7 October as World Cotton Day** in 2021 to highlight cotton's role in trade, economic growth and poverty reduction.
- **Global Celebration 2026:** The main celebration was held in **Tashkent, Uzbekistan**, under the theme “**Cotton for Good: Building Prosperity Through Trade, Transformation and Partnership.**”
- **Traditional Crafts:** Kantha embroidery in Bolpur, West Bengal, demonstrates cotton based value addition, women's livelihoods, traditional craft preservation and resource efficiency.

Note: To read more about the ‘Cotton Industry in India’, please refer to the 2nd Article under the “Economy” section of the August 2026 Magazine.

12.5. INDIA ROLLS OVER ₹30 BILLION CURRENCY SWAP FACILITY FOR MALDIVES

Context: India approved the rollover of the Maldives' first ₹30 billion drawdown under their bilateral currency swap arrangement, supporting its financial stability under the Neighbourhood First Policy.

- **Currency Swap Facility:** A currency swap is a temporary exchange of currencies between central banks, reversed later, providing foreign exchange liquidity during balance of payments difficulties.
- **SAARC Currency Swap Framework 2024 to 2027:** The Reserve Bank of India offers swap facilities to the other seven SAARC countries through bilateral agreements.

India Maldives Agreement

- **Signed in October 2024** between the Reserve Bank of India and the Maldives Monetary Authority.
- **Facility:** Access to 400 million US dollars under the USD and Euro window and ₹30 billion under the Indian Rupee window on concessional terms.

12.6. SME GROWTH FUND

Context: Union Cabinet approved the ₹10,000 crore SME Growth Fund under Union Budget 2026 to 27 to support high-potential SMEs through direct equity investment.

Key Features

- **Objective:** Provide patient equity capital, bridge the missing middle financing gap and develop globally competitive enterprises.
- **Priority Sectors:** Manufacturing, services, technology, innovation and strategic value chains.
- **Manufacturing Focus:** Capacity expansion, advanced technology and productivity improvement.
- **Regional Focus:** Tier II and Tier III industrial clusters to promote balanced growth and local supply chains.
- **Fund Structure:** Direct equity investment fund under the Alternative Investment Fund framework, which pools domestic and foreign investor funds for investment.

MSME Classification: Effective April 2025, based on investment in plant, machinery or equipment and annual turnover.

- **Micro:** Investment up to ₹2.5 crore and turnover up to ₹10 crore.
- **Small:** Investment up to ₹25 crore and turnover up to ₹100 crore.
- **Medium:** Investment up to ₹125 crore and turnover up to ₹500 crore.

12.7. RBI FOREX SWAP FACILITY AND VRRR OPERATIONS

Context: The RBI mobilised USD 143.5 billion through forex swaps and managed a ₹4.92 lakh crore systemic liquidity surplus.

Special Forex Swap Facility

- Introduced in **June 2026** to attract dollar inflows, improve forex liquidity and limit rupee depreciation.
- Banks exchange foreign currency with the RBI for rupees, reducing exchange rate risk.
- **By September 2026**, inflows reached USD 143.5 billion, including USD 132 billion through FCNR(B) deposits and the remainder through overseas foreign currency borrowings and external commercial borrowings.

Variable Rate Reverse Repo

- The RBI absorbed ₹71,971 crore through an overnight VRRR auction.
- VRRR operates under the Liquidity Adjustment Facility to absorb surplus banking liquidity for a specified period.
- Its interest rate is determined through competitive bidding, unlike the fixed rate reverse repo.
- Helps align overnight money market rates with the repo rate.

Open Market Operations: The RBI sells government securities to absorb excess rupee liquidity from the banking system.

12.8. NORTHEAST INDIA'S LARGEST THERMAL POWER PROJECT

Context: Assam's Chapar in Dhubri district will host Adani Power's 3,200 MW thermal power plant, involving ₹48,000 crore investment, with

commissioning scheduled from December 2030 in phases.

Key Features

- **Technology:** Ultra-supercritical technology improves efficiency through higher operating temperatures and pressures.
- **Significance:** Expected to become Northeast India's largest power project, surpassing the 2,000 MW Subansiri Lower Hydroelectric Project.
- **Benefits:** Reliable and affordable electricity, employment generation, local industrial growth and higher State GST revenue.

12.9. ALTERNATIVES TO SWIFT

Context: Geopolitical tensions and sanctions have accelerated efforts to develop alternatives to SWIFT through local currencies, Central Bank Digital Currencies and interoperable payment systems.

SWIFT System

- **Established:** 1973, headquartered in Brussels, Belgium.
- **Function:** Secure messaging network for cross border payment instructions. It does not transfer or settle funds itself.
- **Governance:** Overseen by central banks of G10 countries, European Central Bank and National Bank of Belgium. **Coverage:** Used by over 11,000 financial institutions worldwide.
- **Identification:** Uses 8 or 11 character Bank Identifier Codes to identify financial institutions.
- **Sanctions:** Exclusion restricts international payments, trade settlements and access to credit.

Multilateral and Digital Payment Systems

- **Project mBridge:** Launched in 2021, it uses distributed ledger technology to enable real time cross border payments and foreign exchange transactions using multiple central bank digital currencies. Participants include China, Thailand, the United Arab Emirates, Hong Kong and Saudi Arabia. The Reserve Bank of India is an observer.

- **BRICS Pay:** Proposed by the BRICS Business Council in 2018 to facilitate cross border payments using local currencies and interoperable national payment systems.
- **Project Nexus:** Developed by the Bank for International Settlements Innovation Hub to connect domestic fast payment systems for instant cross border retail payments. Founding members are India, Malaysia, the Philippines, Singapore and Thailand.
- **Stablecoins:** Digital tokens such as USDC and USDT, pegged to fiat currencies, enable rapid cross border settlements through public blockchains and support business payments and payroll.

12.10. INDIA'S FIRST BLUE BOND

Context: Sagarmala Finance Corporation Limited, India's first maritime sector specific NBFC, plans to issue India's first blue bond to finance sustainable maritime infrastructure.

Key Features

- **Issue Size:** ₹600 crore through 10 year debt securities, including a ₹500 crore greenshoe option.
- **Use of Funds:** Maritime lending, greenfield port development and coastal road expansion.
- **Arranger:** SBI Capital Markets, targeting institutional investors such as insurance companies and provident funds.

Blue Bonds: Debt instruments and a category of green bonds financing marine ecosystem conservation and sustainable water use.

- Applications include sustainable shipping, ocean renewable energy, marine biodiversity, sustainable fisheries, water recycling and coastal mapping.
- **Municipal Blue Bonds:** Vadodara Municipal Corporation plans to raise around ₹200 crore through blue bonds.
- **Seychelles:** Issued the world's first sovereign blue bond in 2018 through a World Bank supported fisheries project.

12.11. STEEL INDUSTRY SAFETY COUNCIL

Context: The Ministry of Steel will establish the Steel Industry Safety Council to strengthen safety

standards and prevent accidents across India's steel sector.

Steel Industry Safety Council

- **Administration:** Functions under the Ministry of Steel, chaired by its Secretary.
- **Composition:** Government officials, integrated steel producers' CEOs and representatives of the Directorate General of Mines Safety, Petroleum and Explosives Safety Organisation, National Disaster Management Authority and steel technology institutions.
- **Functions:** Assess industry safety, approve standards, conduct studies and review serious accidents and near misses.

12.12. SURGING SULPHUR PRICES AND IMPLICATIONS FOR INDIA

Context: Global sulphur prices rose from USD 280 per tonne in July 2025 to USD 1,050 in July 2026 due to the Russia-Ukraine war and West Asian conflicts.

Global Sulphur Market

- **Production:** 92 percent is recovered as a by-product of petroleum refining and natural gas processing; 8 percent comes from mining.
- **Major Producers:** China, United States, Russia, Saudi Arabia and United Arab Emirates.
- **Supply Deficit:** In 2025, demand was 72.8 million tonnes against supply of 70.8 million tonnes.
- **Growing Demand:** Sulphuric acid is used in high pressure acid leach plants to extract nickel from laterite ores for electric vehicle batteries, particularly in Indonesia.

Reasons for Price Surge

- **Russia:** Ukrainian drone attacks damaged sulphur recovery infrastructure at the Astrakhan gas processing plant. Russia restricted industrial sulphur exports until 31 December 2026.
- **West Asia:** Regional conflicts increased supply disruptions and market uncertainty.

India's Import Dependence

- **Domestic Production:** Around 3.7 million tonnes, but imports remain necessary. Higher

international prices increase import expenditure

- **Fertiliser Sector:** Imports over 52 per cent of its sulphur requirement. This raises government subsidy pressures
- **Import Concentration:** West Asia supplies around 90 percent of India's sulphur imports.
- **2025 Imports:** 2.25 million tonnes, including 2.02 million tonnes from West Asia and 0.15 million tonnes from Russia.
- **Agriculture:** Higher input costs threaten farm production and food security.
- **Inflation:** Rising fertiliser and industrial costs may increase food and overall inflation.
- **Supply Chains:** Geopolitical disruptions threaten fertiliser production and metal processing.

12.13. INDIA'S FIRST WASH FOCUSED SOCIAL BOND

Context: NABKISAN Finance Limited listed India's first social bond exclusively focused on Water, Sanitation and Hygiene on the National Stock Exchange.

Key Features

- **Amount Raised:** ₹180 crore for a 5-year **tenure** maturing in September 2031. **Coupon Rate:** 8.10 per cent.
- **Credit Rating:** CRISIL AAA Stable and CARE AAA Stable.
- **Use of Funds:** Safe drinking water, sanitation and hygiene in rural and underserved communities.

Social Bonds: Debt instruments that finance projects with defined social objectives, including healthcare, education, affordable housing, livelihoods and WASH.

Institutions

- **NABKISAN Finance Limited:** Subsidiary of the National Bank for Agriculture and Rural Development.
- **Water.org:** Technical advisor and knowledge partner.

12.14. INTEGRATED TRANSPORT AND LOGISTICS AUTHORITY

Context: The Union Cabinet approved ITLA as a Special Purpose Vehicle to improve integrated planning and coordination across transport and logistics sectors.

Key Features

- **Objective:** Coordinate transport Ministries and agencies and support multimodal infrastructure planning, complementing PM Gat-iShakti and the National Logistics Policy.
- **National Transport Master Plan:** Prepare a long-term plan of at least 10 years covering roads, railways, ports, shipping, aviation, inland waterways and urban mobility.
- **Plan Coordination:** Review annual and five-year sectoral plans for consistency with the national master plan.
- **Project Appraisal:** Technically appraise government infrastructure projects costing ₹500 crore or more. Financial appraisal remains under existing mechanisms.
- **Monitoring:** Monitor projects and assess their post-implementation impact.
- **Data Repository:** Integrate data from Goods and Services Tax Network e-way bills, FASTag, Vahan, Global Positioning System systems and urban traffic systems.
- **Policy and Skills:** Support logistics policy reviews, training, skill development, research and innovation.

12.15. RBI MPC RAISES REPO RATE TO 5.50 PERCENT

Context: The RBI Monetary Policy Committee raised the repo rate by 25 basis points to 5.50 percent and adopted a calibrated tightening stance to control inflation.

Policy Rates

- **Repo Rate:** 5.50 percent; **Standing Deposit Facility:** 5.25 percent; **Marginal Standing Facility** and **Bank Rate:** 5.75 percent

Economic Outlook for 2026 to 27

- **Inflation Forecast:** Raised by 20 basis points to 5.2 percent. Consumer Price Index inflation reached 4.8 percent in August 2026, while projected core inflation is 4.4 percent.

- **GDP Growth Forecast:** Increased from 6.7 percent to 7.1 percent, supported by domestic demand.

Calibrated Tightening: Gradual monetary tightening through measured rate increases or liquidity reduction, with further action depending on inflation trends and the impact of earlier measures.

Reasons for Rate Hike

- **Widening Inflation:** Around 37 percent of Consumer Price Index items recorded inflation above 4 percent in August 2026.
- **Weather Risks:** Deficient monsoon, El Niño conditions and low reservoir levels threatened agricultural output and raised food prices.
- **Geopolitical Tensions:** West Asian conflicts and crude oil prices above USD 100 per barrel increased imported inflation risks.
- **Capital Outflows:** A narrowing India United States interest rate differential increased pressure on the rupee and foreign portfolio investment flows.

12.16. INDIA EU GREEN SHIPPING CORRIDOR

Context: India and the European Union launched an industry coalition at the 3rd Sagarmanthan Dialogue in 2026 to develop commercially viable, low emission shipping routes.

Key Features

- **Green Fuel Trade:** Promote green ammonia and methanol trade between India and Europe for maritime decarbonisation.
- **Implementation:** Builds on a pre feasibility study launched in 2025 to attract investment and strengthen government industry cooperation.
- **Green Ports:** Harit Sagar Guidelines 2023 target renewable energy for over 60 percent of major port energy needs by 2030 and over 90 percent by 2047.
- **Green Hydrogen Hubs:** Deendayal Port in Gujarat, Paradip Port in Odisha and V. O. Chidambaranar Port in Tamil Nadu.
- **Clean Operations:** Promote green harbour tugs, shore to ship electricity and electrification of port equipment and vehicles.

- **Supply Chain Resilience:** Address geopolitical and climate risks while ensuring an inclusive green transition

12.17. 57TH GST COUNCIL MEETING

Context: The GST Council approved procedural reforms to simplify registration, refunds, input tax credit, exports and litigation, with most changes expected from 1 April 2027.

Key Outcomes

- **GST Rates:** No rate changes announced. Future rate decisions to be implemented annually from the next financial year.
- **Registration:** Simplified documentation. Currently, 61 percent of taxpayers receive automatic registration within three working days.
- **Refunds:** Acknowledgement period reduced from 15 to 10 days.
- **Inverted Duty Structure:** Refunds for input services from 1 November 2026. An inverted duty structure (IDS) occurs when the rate of tax or duty on raw material inputs is higher than the rate of tax or duty on finished output goods
- **Litigation:** GST notices below ₹10,000 to be discontinued, including withdrawal of pending notices below this threshold.
- **Decriminalisation:** Recommended removal of GST officers' arrest powers and raising the prosecution threshold from ₹1 crore to ₹5 crore.

GST Council

- **Constitutional Basis:** Article 279A, inserted by the 101st Constitutional Amendment Act, 2016.
- **Composition:** Union Finance Minister as Chairperson, Union Minister of State for Finance or Revenue, and State Finance or Taxation Ministers.
- **Functions:** Recommends GST rates, exemptions, thresholds, model laws, place of supply rules and IGST apportionment.
- **Quorum:** At least 50 percent of total members.
- **Voting:** Three fourths weighted majority of members present and voting. Centre holds one third and

12.18. NOBEL PRIZE IN ECONOMIC SCIENCES 2026

Context: The 2026 Economics Prize was awarded to **Robert E. Hall** of Stanford University and **Michael Woodford** of Columbia University for **work on microeconomic foundations of macroeconomic stabilisation**.

Background

- **Robert Lucas, 1976:** Highlighted that households and firms change behaviour in response to policy, challenging models based on fixed historical relationships.
- The stagflation of the 1970s exposed limitations of traditional Keynesian models.

Robert E. Hall

- **Labour Market Frictions:** Job search and matching difficulties can prolong unemployment.
- **Consumption Theory:** Household consumption depends on expected lifetime wealth, not just current income.
- **Random Walk Hypothesis, 1978:** Consumption changes mainly in response to unexpected information.

Michael Woodford

- **New Keynesian Framework:** Firms adjust prices slowly due to price rigidities and base current pricing partly on expected inflation and monetary policy.
- **Forward Guidance:** Credible central bank communication about future policy influences current consumption, investment and inflation expectations.

Macroeconomic Stabilisation Policy

- **Meaning:** Government and central bank measures to maintain stable growth, control inflation and reduce unemployment fluctuations.
- **Fiscal Policy:** Government taxation and expenditure.
- **Monetary Policy:** Central bank interest rates and money supply management.
- **Objectives:** Price stability, business cycle management, employment support and expectation management.

Economics Prize: Established in **1968** by **Sveriges Riksbank**; first awarded in **1969** to Ragnar Frisch

and Jan Tinbergen. The awarding institution is the Royal Swedish Academy of Sciences, Stockholm.

• Indian Laureates:

- **Amartya Sen, 1998:** Contributions to welfare economics and human development.
- **Abhijit Banerjee, 2019:** Shared the prize with Esther Duflo and Michael Kremer for experimental approaches to reducing global poverty, including randomised controlled trials.

12.19. FOREIGN EXCHANGE RISK RESERVE

Context: The Reserve Bank of India introduced the Foreign Exchange Risk Reserve in October 2026 to curb rupee depreciation and speculative dollar demand.

Key Features

- **Reserve Requirement:** 20 percent cash reserve on specified rupee linked foreign exchange derivative contracts involving foreign currency purchases.
- **Coverage:** Initially applied to eligible customer contracts exceeding USD 2 million, later extended to authorised dealers' own hedging contracts regardless of value.
- **Duration:** Reserve maintained with the RBI daily until contract expiry.
- **Objective:** Increase hedging costs and discourage excessive advance dollar bookings and speculative pressure on the rupee.

Implications

- **Importers:** Higher hedging costs and greater exposure to exchange rate fluctuations.
- **Short Term Relief:** May temporarily support the rupee, but sustained stability depends on crude oil prices and foreign portfolio investment flows.
- **Market Uncertainty:** Sudden intervention may disrupt normal forex price discovery.
- **Structural Limitations:** Does not directly address the current account deficit, trade imbalances, high oil prices or foreign capital outflows.

12.20. SURGE IN GLOBAL BOND YIELDS

Context: Global bond yields have risen to multi-year highs, with the US 10-year Treasury yield exceeding 5 per cent, while Chinese yields have fallen to record lows.

Bond Yields

- **Bond:** Debt instrument through which governments or companies borrow funds. Government bonds are called G Securities in India, Treasuries in the US and Gilts in the UK.
- **Bond Yield:** Annualised return based on the bond's market price. Bond prices and yields move inversely.
- **Yield Curve:** Shows yields across maturities. An inverted curve, where short-term yields exceed long-term yields, may signal recession.

RBI's Role in Managing Yields

- **Open Market Operations:** RBI purchases of government securities increase bond prices and lower yields. Sales reduce prices and raise yields.
- **Operation Twist:** Simultaneous purchase of long term and sale of short term securities to influence the yield curve.
- **Policy Instruments:** Repo rate, Cash Reserve Ratio and Statutory Liquidity Ratio influence liquidity and interest rates.

Reasons for Rising Global Yields

- **Persistent Inflation:** Investors demand higher returns to compensate for declining purchasing power.

- **Higher Interest Rates:** Expectations of prolonged restrictive monetary policy raise borrowing costs.
- **Fiscal Deficits:** Increased government borrowing raises bond supply and can push yields upward.
- **India:** The 10-year G-Sec yield rose from around 6.67 percent in early 2026 to 7.40 percent in October 2026, amid inflation concerns and heavy government borrowing.

Why China Is Different

- **Deflationary Pressures:** Weak inflation and accommodative monetary policy depress yields.
- **Real Estate Crisis:** Weak property markets and volatile equities encourage investment in safer assets.
- **Capital Controls:** Restrictions on overseas investment channel domestic savings towards government bonds, increasing demand and lowering yields.

Macroeconomic Implications for India

- **Capital Outflows:** Higher advanced economy yields may divert foreign portfolio investment from Indian markets.
- **Rupee Depreciation:** Capital outflows can weaken the rupee against the US dollar.
- **Imported Inflation:** A weaker rupee raises import costs, especially crude oil, potentially widening the current account deficit.
- **Higher Borrowing Costs:** Tighter financial conditions can raise borrowing costs for government and private businesses.

SECURITY AND DEFENCE

1. NEED TO REVISIT INDIA'S NUCLEAR DOCTRINE

Context: India's nuclear doctrine, largely unchanged since 2003, is being reassessed amid changing **strategic, technological and geopolitical conditions**.

India's Nuclear Doctrine

- **Evolution:** The doctrine emerged after the **1998 Pokhran-II tests**; the **1999 Kargil War** demonstrated that nuclear deterrence does not prevent conventional conflict.
- **Operationalisation:** The **Cabinet Committee on Security (CCS)** operationalised the doctrine in 2003, based on the 1999 Draft Nuclear Doctrine.

Core Elements

- **No First Use (NFU):** Nuclear weapons used only in retaliation to a nuclear attack on Indian territory or forces.
- **Credible Minimum Deterrence (CMD):** Maintains a sufficient, non-country-specific arsenal capable of causing **unacceptable damage**.
- **Massive Retaliation:** Nuclear retaliation designed to cause unacceptable damage, reinforcing **Mutually Assured Destruction (MAD)**.
- **Civilian control:** Nuclear use authorised through the **Nuclear Command Authority (NCA)**.
 - **Political Council:** Chaired by the Prime Minister; sole authority to authorise nuclear use.
 - **Executive Council:** Chaired by the National Security Advisor; provides strategic advice and implements decisions.
- **Negative Security Assurance:** No nuclear use against **non-nuclear-weapon states**, while retaining the option of nuclear retaliation against major **chemical or biological weapon attacks**.
- **Disarmament:** Maintains a **nuclear-testing moratorium** and supports verifiable, non-discriminatory global nuclear disarmament.

India's Nuclear Arsenal

- **Stockholm International Peace Research Institute (SIPRI) Yearbook 2026:** Estimates India's arsenal at **190 warheads**, including 12 deployed and 178 in reserve.
- Estimated arsenals: **India 190, Pakistan 170, China 620**.
- **Operation Sindoor, May 2025:** India-Pakistan confrontation marked increased integration of **cyber warfare into active military conflict**.

Need to Revise the Doctrine

- **Converging Threats:** China's expanding nuclear capabilities near the **Line of Actual Control (LAC)** and Pakistan's nuclear deterrence strategy increasingly create an interconnected two-front nuclear challenge.
- **Tactical Nuclear Weapons (TNWs):** Pakistan's low-yield TNWs such as **Nasr** complicate India's **Massive Retaliation** doctrine, necessitating debate over **NFU, CMD** and flexible/proportionate responses.
- Emerging Technologies & Nuclear Command, Control and Communications (NC3) Risks → **Compressed Decision Time:** **Artificial Intelligence (AI), cyber warfare, Anti-Satellite (ASAT) weapons and Hypersonic Glide Vehicles (HGVs)** can shorten warning timelines, requiring resilient **Nuclear Command, Control and Communications (NC3)** and survivable second-strike capabilities.

- **New Strategic Complexity:** The **Bangladesh-US nuclear MoU**, Russia's **Rooppur** role and India's tri-lateral cooperation increase external nuclear influence, requiring stronger **nuclear diplomacy and strategic autonomy**.

Measures to Strengthen the Doctrine

- **Credible Second Strike:** Ensure **Continuous At-Sea Deterrence (CASD)** through faster induction of **nuclear-powered ballistic missile submarines (SSBNs)** such as *INS Arighat* and *S4-class* submarines, while enhancing survivability through **Multiple Independently Targetable Reentry Vehicles (MIRVs)**, as demonstrated by *Agni-V Divyastra*.
- **Harden NC3:** Protect early-warning and surveillance systems from **cyberattacks, AI-enabled spoofing and ASAT threats**, while ensuring uninterrupted intelligence to the **Nuclear Command Authority (NCA)**.
- **Better Civil-Military Integration:** Implement **Kargil Review Committee** and **Naresh Chandra Task Force** lessons and strengthen the **Chief of Defence Staff (CDS)-NCA-Strategic Forces Command (SFC)** institutional linkages.
- **Flexible Deterrence:** Retain **NFU** while developing calculated ambiguity and proportionate response options to counter **TNWs** and prevent exploitation of escalation gaps.

Conclusion: India needs a **calibrated review, not wholesale overhaul**, of its nuclear doctrine, combining **credible deterrence, survivable second-strike capability, technological resilience and strategic autonomy** with adaptation to evolving regional threats.

Test Your Knowledge	
<p>Prelims Corner</p> <p>Consider the following statements regarding India's nuclear doctrine:</p> <ol style="list-style-type: none"> 1. The Political Council of the Nuclear Command Authority is chaired by the Prime Minister and has the sole authority to authorise the use of nuclear weapons. 2. India's No First Use policy permits the use of nuclear weapons in retaliation to a major chemical or biological weapons attack. 3. The principle of Credible Minimum Deterrence requires India to maintain a nuclear arsenal specifically matched to the nuclear capabilities of each adversary. 4. India's nuclear doctrine was operationalised by the Cabinet Committee on Security in 2003. <p>Which of the statements given above are correct?</p> <p>(a) 1, 2 and 4 only (b) 1 and 3 only (c) 2, 3 and 4 only (d) 1, 2, 3 and 4</p> <p>Answer: (a) 1, 2 and 4 only</p>	<p>Mains Corner</p> <p>Q. India's nuclear doctrine faces new challenges from China-Pakistan strategic convergence, tactical nuclear weapons and emerging technologies. Discuss the need to revisit India's nuclear doctrine while preserving strategic stability and credible deterrence. (15 marks, 250 words)</p>

2. INDIA'S SECURITY DOCTRINE: MOVING TOWARDS PROACTIVE DETERRENCE

Context: At DefCon 2026, India's Defence Minister highlighted the "**perimeter fallacy**" and a shift from strategic containment and deterrence by denial towards proactive deterrence by punishment.

Understanding the Perimeter Fallacy

- **Meaning:** The mistaken belief that national security can be ensured mainly by protecting geographical borders.

- **Evolving threats:** Drone incursions, cyberattacks, disinformation and lone-wolf attacks transcend physical boundaries.
- **Economic security:** Supply-chain disruptions and energy insecurity can threaten national interests without territorial incursions. India's crude oil import dependence makes the Strait of Hormuz strategically important.

Major Gaps in India's Security Architecture

- **Critical technology dependence:** Reliance on foreign semiconductors, advanced electronics, Active Pharmaceutical Ingredients (APIs) and rare earth elements exposes strategic industries to geopolitical pressure and supply disruptions.
- **Energy and maritime vulnerability:** India imports over 85% of its crude oil. The Strait of Hormuz, Red Sea and Gulf of Aden are vulnerable chokepoints; Houthi attacks can increase freight costs, insurance premiums and supply disruptions.
- **Two-front grey-zone threats:** China-Pakistan cooperation involves cyber espionage, border infrastructure expansion, proxy insurgencies and intelligence sharing, including reported Chinese support to Pakistan during Operation Sindoor.
- **Borderless threats:** State-sponsored cyber warfare, autonomous drone swarms and Artificial Intelligence (AI)-driven disinformation can undermine security and social cohesion. The November 2025 Red Fort car bombing, as cited in the article, highlights asymmetric terrorist threats.
- **Grassroots technology gaps:** Despite capabilities at the National Critical Information Infrastructure Protection Centre (NCIIPC) and Indian Cyber Crime Coordination Centre (I4C), state police face gaps in digital evidence extraction, drone interception and investigations under the Bharatiya Sakshya Adhiniyam (BSA), 2023.



Building a Resilient Security Framework

- **Multi-domain preparedness:** Integrate land, maritime, cyber, space, economic and information capabilities.
- **Integrated Theatre Commands:** Accelerate Integrated Theatre Commands (ITCs) for Western, Eastern and Maritime theatres under the Chief of Defence Staff (CDS), enabling joint planning, unified resource allocation and coordinated responses.

- **Defence indigenisation:** Expand the Positive Indigenisation Lists, covering over 5,500 items, and scale up Innovations for Defence Excellence (iDEX). Direct the 25% defence Research and Development (R&D) allocation for private industry and academia towards indigenous technologies, including electronic warfare, quantum encryption and counter-drone systems.
- **Critical infrastructure protection:** Link public utilities, banks, telecom networks and the Indian Computer Emergency Response Team (CERT-In) through mandatory, real-time cyber-threat information sharing.
- **Strategic economic buffers:** Expand Strategic Petroleum Reserves (SPRs) beyond the existing 9.5-day commercial buffer and diversify maritime logistics through the India-Middle East-Europe Economic Corridor (IMEC).
- **Whole-of-government coordination:** Integrate the National Intelligence Grid (NATGRID), Samanvaya platform and local police to disrupt proxy terror networks, terror financing and cyber syndicates before escalation.

Conclusion: India's evolving security doctrine requires multi-domain preparedness, credible retaliation, defence indigenisation and strategic resilience to deter aggression and safeguard sovereignty and national interests.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>With reference to India's evolving security doctrine, consider the following statements:</p> <ol style="list-style-type: none"> 1. Deterrence by denial seeks to prevent an adversary from succeeding in an attack through defensive measures. 2. Deterrence by punishment seeks to impose credible costs on an adversary after hostile action. 3. The "perimeter fallacy" assumes that national security can be ensured primarily by protecting physical territorial boundaries. <p>Which of the statements given above are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: D. 1, 2 and 3</p>	<p>Q. India's shift from "deterrence by denial" to "deterrence by punishment" reflects the changing nature of national security threats. Discuss the significance and challenges of this shift in the context of multi-domain warfare.</p> <p>(15 marks, 250 words)</p>

3. THE NEED TO REFORM THE UNLAWFUL ACTIVITIES (PREVENTION) ACT, 1967

Context: Concerns over prolonged trials and pre-trial detention under the Unlawful Activities (Prevention) Act (UAPA), 1967 have renewed demands to balance national security with Fundamental Rights, the presumption of innocence and speedy trials.

Key Provisions

- **Section 43D:** Restricts anticipatory bail and imposes stringent conditions on regular bail.
- **Section 43D(5):** Bail must be denied when accusations appear prima facie true, based on the available case record.
- **Section 43E:** Presumes guilt in specified cases involving arms or explosives, subject to statutory conditions.
- **Extended detention:** Police custody may extend to 30 days and the chargesheet deadline to 180 days.

Need for the Unlawful Activities (Prevention) Act (UAPA), 1967

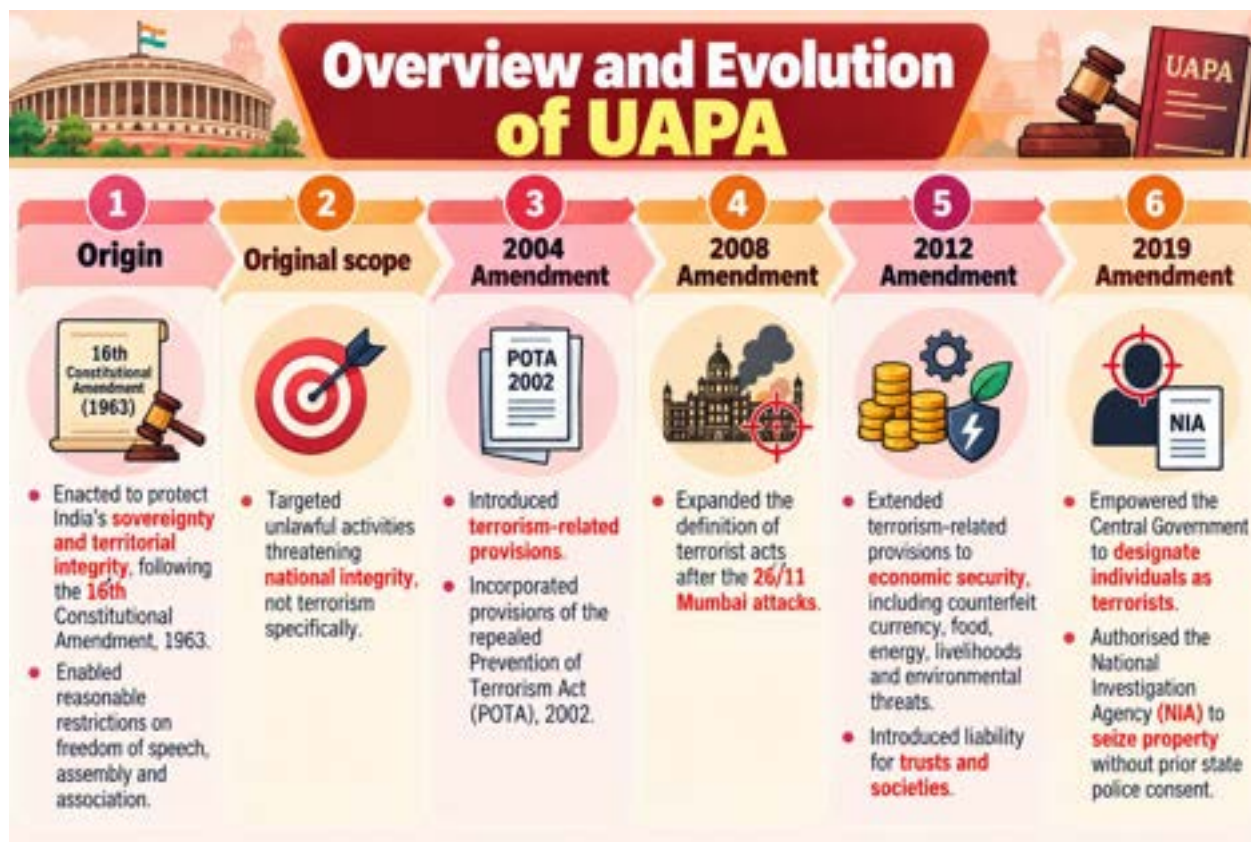
- **Counter-terrorism:** Provides a legal framework to investigate, prosecute and punish terrorism threatening India's sovereignty, territorial integrity and national security.
- **Disrupting terrorist financing:** Sections 17–21 criminalise terrorist funding and activities involving proceeds of terrorism, targeting financial support networks.
- **Preventing secessionism:** Sections 2(o) and 13 address unlawful activities threatening India's sovereignty and territorial integrity.
- **Targeting organised terror networks:** Sections 35–40 provide for designation of terrorist organisations and penalise related support and fundraising. The 2019 amendment empowered the government to designate individuals as terrorists.
- **International obligations:** Supports implementation of United Nations Security Council Resolution 1373 (2001) and India's commitments to combat terrorist financing.

Major Concerns

- **Vague definitions:** Broad terms such as “likely to threaten” create uncertainty and may criminalise anticipated actions. The 2020 United Nations Special Rapporteurs raised concerns about compatibility with international human rights standards, including the International Covenant on Civil and Political Rights (ICCPR).
- **Presumption of innocence:** Section 43D(5) restricts bail and limits judicial scrutiny at the pre-trial stage.
- **Prolonged detention:** Low conviction rates, often reported below 3% in cited data, raise concerns about imprisonment without conviction. The Bhima Koregaon case, including Father Stan Swamy's death in custody while awaiting trial, illustrates these concerns.
- **Threat to Fundamental Rights:** Potential misuse against dissenters, journalists and activists may restrict Article 19(1)(a) (freedom of speech) and Article 21 (life, personal liberty and speedy trial), creating a chilling effect on democratic participation.
- **Disproportionate impact:** Strict bail conditions and lengthy detention particularly disadvantage marginalised groups and those lacking adequate legal representation.

Key Judicial Pronouncements

- **NIA v. Zahoor Ahmad Shah Watali (2019):** Courts should not conduct a mini-trial or extensively evaluate evidence while deciding bail under UAPA.
- **Arup Bhuyan v. State of Assam (2011; reviewed in 2023):** The 2011 ruling held that mere membership of a banned organisation was insufficient without overt violence or incitement. In 2023, a three-judge bench overturned this interpretation and upheld the criminality of continued membership under Section 10(a)(i).
- **Union of India v. K.A. Najeeb (2021):** Section 43D(5) cannot override Article 21; excessive trial delays may justify bail despite statutory restrictions.
- **Thwaha Fasal v. Union of India (2021):** Association with a terrorist organisation or possession of radical literature alone is insufficient without the required criminal intent (mens rea).



Reforms Needed

- **Define terrorism precisely:** Align the definition with United Nations counter-terrorism guidance, requiring clear intent to cause death or serious bodily injury and a political or ideological motive; remove vague expressions.
- **Restore judicial discretion:** Reform Section 43D(5) to permit independent scrutiny of evidence and require the state to justify continued detention, drawing lessons from the United Kingdom's Terrorism Act, 2000.
- **Independent review:** Establish statutory committees comprising retired judges to examine evidence and prosecution proposals before executive approval.
- **Compensation for wrongful detention:** Provide financial compensation and rehabilitation following wrongful incarceration, building on the constitutional tort principle recognised in Rudul Sah v. State of Bihar (1983).
- **Time-bound trials:** Establish special fast-track courts and prescribed trial timelines, alongside effective access to statutory and constitutional bail remedies. Any automatic default-bail trigger would require appropriate legislative provisions.

Conclusion: Precise definitions, independent oversight, judicial discretion and timely trials can strengthen counter-terrorism efforts while protecting Fundamental Rights, civil liberties and the rule of law.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Q. With reference to the Unlawful Activities (Prevention) Act (UAPA), 1967, consider the following statements:</p> <ol style="list-style-type: none"> 1. The original Act explicitly defined terrorist acts when it was enacted in 1967. 2. The 2019 amendment empowered the Central Government to designate individuals as terrorists. 3. Section 43D(5) imposes restrictions on granting bail to persons accused under the Act. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (b) 2 and 3 only</p>	<p>"The Unlawful Activities (Prevention) Act (UAPA), 1967, seeks to safeguard national security, but its stringent provisions have raised concerns about fundamental rights and the principle of "process as punishment." Critically examine the need for reforms to balance national security with civil liberties. (15 marks, 250 words)</p>

4. POINTERS FOR PRELIMS

4.1. SOUTH KOREA TESTS ITS FIRST INDIGENOUS HYPERSONIC MISSILE

Context: South Korea tested its first indigenously developed hypersonic missile equipped with a manoeuvrable Hypersonic Glide Vehicle, amid rising Korean Peninsula tensions following North Korea's hypersonic missile test.

- **Hypersonic Missiles:** Travel at Mach 5 or faster, at least five times the speed of sound, and can manoeuvre significantly during flight, making interception more challenging.
- Unlike conventional ballistic missiles, hypersonic weapons can manoeuvre during their post-boost flight, making their trajectories less predictable and interception more difficult.

4.2. RESEARCH AND ANALYSIS WING

Context: R&AW marked 58 years since its establishment on 21 September 1968.

Key Facts

- **Role:** India's principal external intelligence agency under the Cabinet Secretariat, supporting national security and foreign policy.
- **Functions:** Collects foreign intelligence and monitors neighbouring countries and security threats.
- **Origin:** The 1962 India-China War exposed intelligence gaps. Before 1968, the Intelligence Bureau handled both internal and external intelligence.

- **Establishment:** Founded in 1968 under Prime Minister Indira Gandhi, with R. N. Kao as its first chief.
- **Historical Role:** Provided intelligence support during the 1971 Bangladesh Liberation War.
- **Evolution:** Initially focused on China and Pakistan; later expanded to counterterrorism, strategic intelligence and regional security.

4.3. INDIA PAKISTAN NAVAL COLLISION IN THE NORTH ARABIAN SEA

Context: Pakistan's PNS Hunain reportedly collided with India's INS Kolkata in the North Arabian Sea.

Naval Vessels

- **PNS Hunain:** Pakistani offshore patrol vessel commissioned in July 2024, used for maritime security and electronic warfare.
- **INS Kolkata:** Project 15A guided missile destroyer built by Mazagon Dock Shipbuilders, equipped with BrahMos supersonic cruise missiles and anti submarine systems.

Maritime Rules

- **COLREGs:** International Regulations for Preventing Collisions at Sea establish rules to prevent maritime collisions.
- **1991 India Pakistan Agreement:** Article 10 reportedly requires naval vessels to maintain a distance of three nautical miles in international waters.

Previous Incident: In 2011, Pakistan's PNS Babur collided with India's INS Godavari in the Gulf of Aden.

4.4. SAT SAAW GLIDE BOMBS FOR INDIAN AIR FORCE

Context: The Ministry of Defence signed an ₹810.79 crore contract with Bharat Dynamics Limited to procure 160 Satellite Smart Anti-Airfield Weapons and related equipment for the Indian Air Force.

Key Features

- **Category:** Buy Indian, Indigenously Designed, Developed and Manufactured.
- **Delivery:** 2027 to 28 and 2028 to 29.
- **Purpose:** Precision-guided air-to-ground glide bomb designed to neutralise enemy airfields from long stand-off ranges.
- **Developer:** Defence Research and Development Organisation. **Indigenous Content:** 60 per cent.
- **Critical Subsystems:** Inertial Measurement Unit, Long Impact Delay Fuse and Twin Store Carrier.

4.5. SURYA: INDIA'S FIRST INDIGENOUS FLEET SUPPORT SHIP

Context: The Defence Minister launched Surya at Hindustan Shipyard Limited, Visakhapatnam, and laid the keel of the fifth Fleet Support Ship.

Fleet Support Ships

- **Role:** Replenish naval vessels at sea with fuel, ammunition, food, water and other supplies, extending deployment without frequent port visits.
- **Programme:** Hindustan Shipyard Limited is building five ships, each with about **82 per cent** indigenous content under Atmanirbhar Bharat.

Key Features of Surya

- **Displacement:** Approximately 43,500 tonnes. **Speed:** Around 20 knots. **Endurance:** Nearly 60 days. **Capacity:** 20,000 tonnes of diesel, 2,500 tonnes of aviation turbine fuel and 1,000 tonnes of fresh water, besides ammunition and supplies.

Operational Capabilities

- Replenishes multiple ships through alongside, stern and helicopter transfers.
- Includes onboard maintenance facilities and a helicopter deck.

4.6. AIR MARSHAL ASHUTOSH DIXIT APPOINTED 29TH CHIEF OF THE AIR STAFF

Context: Air Marshal Ashutosh Dixit has been appointed the 29th Chief of the Air Staff, succeeding Air Chief Marshal Amar Preet Singh, who retires on 31 October 2026.

Key Facts

- **Commissioned:** Fighter stream of the Indian Air Force in 1986.
- **Experience:** Over 3,500 flying hours; Experimental Test Pilot and Qualified Flying Instructor.
- **Previous Positions:** Vice Chief of the Air Staff, Air Officer Commanding in Chief of Central Air Command and Chief of Integrated Defence Staff.
- **Operations and Exercises:** Operation Safed Sagar, Operation Rakshak, Exercise Cope India and Operation Sindoor.
- **Awards:** Vayu Sena Medal (2006), Vishisht Seva Medal (2011), Ati Vishisht Seva Medal (2023) and Param Vishisht Seva Medal (2026).

4.7. DRDO SUCCESSFULLY TESTS HIGH-ALTITUDE PLATFORM SYSTEM (HAPS)

Context: DRDO successfully flight-tested an indigenously developed HAPS for long-endurance surveillance in the stratosphere.

- **HAPS:** A station carried by an unmanned aircraft, airship or balloon operating in the stratosphere. **International Telecommunication Union (ITU) Definition:** Operates at an altitude of 20–50 km above Earth.

Flight-Test Achievements

- Reached 21 km above mean sea level and remained at 20 km for over 30 minutes.
- Completed a controlled descent and recovery; flight data were analysed for further development.

Indigenous Technology

- **Developer:** Aerial Delivery Research and Development Establishment (ADRDE), a DRDO laboratory in Agra.
- **Equipment:** Inertial Measurement Unit (IMU), GPS receiver, onboard cameras and altitude-control mechanism.
- **Monitoring:** Flight parameters and video were transmitted in real time to the Ground Control Station.

4.8. INDIAN NAVY COMMISSIONS INS MANGROL

Context: The Indian Navy commissioned INS Mangrol (P82), the third Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC), at Mumbai.

Key Facts

- **Predecessors:** INS Mahe (P80), commissioned in November 2025, and INS Malvan (P81), commissioned in July 2026.
- **Indigenous Construction:** Designed and built by Cochin Shipyard Limited (CSL), Kochi, with over 80% indigenous content.
- **Primary Roles:** Anti-submarine warfare, underwater surveillance, low-intensity maritime operations and mine warfare in coastal and shallow waters.
- **Key Systems:** Abhay hull-mounted sonar, lightweight torpedoes, indigenous anti-submarine rocket launcher and Mareech Advanced Torpedo Decoy System.
- **Propulsion:** Three diesel engine-driven waterjet units for high manoeuvrability in shallow waters.
- **Name:** Named after Mangrol, a coastal town and fishing harbour in Gujarat's Junagadh district; continues the legacy of the earlier minesweeper INS Mangrol (M85), which served until April 2004.

4.9. INDIA-CZECH REPUBLIC TO EXPAND DEFENCE-INDUSTRIAL TIES

Context: India and the Czech Republic agreed in October 2026 to expand defence-industrial cooperation through joint ventures, co-production and technology collaboration.

Defence Cooperation

- **Defence Cooperation MoU:** Signed in October 2003, leading to the establishment of the India-Czech Joint Defence Committee (JDC).
- **JDC Meeting:** The 7th meeting was held in Prague in October 2025, after a five-year gap.
- **Key Focus:** Joint ventures, co-production, technology transfer and greater industrial participation.
- **Significance:** Supports Make in India and Aatmanirbhar Bharat, strengthens domestic defence manufacturing and reduces import dependence.

Czech Republic: Key Facts

- **Location:** Landlocked country in Central Europe. **Capital:** Prague.
- **Membership:** European Union (EU) and North Atlantic Treaty Organisation (NATO).

4.10. INDIAN ARMY LAUNCHES BHARAT RICE

Context: The Indian Army launched Bharat Rice and signed a five-year MoU with the Food Corporation of India (FCI) to improve military ration supply and operational readiness.

Key Features

- **Objective:** Improve ration quality, ensure timely replenishment and support rapid mobilisation during emergencies.
- **Quality Standards:** Developed using troop feedback and prescribed defence specifications.
- **Supply Mechanism:** Direct delivery to Army supply depots, including remote areas of Ladakh and the Northeast, reducing dependence on local FCI facilities.
- **Supplier:** NAFED will supply rice during FY 2026-27.
- **Packaging:** Quality-checked rice in 10-kg and 30-kg bags, designed for easier handling and transport in difficult terrain.
- **MoU Provisions:** Access to FCI warehouses, modern silos, trained personnel and material-handling equipment during operational contingencies. The agreement is extendable by mutual consent.

4.11. INDIAN COAST GUARD INDUCTS INDIGENOUS ALH MK-III HELICOPTER

Context: The Indian Coast Guard inducted CG 875, an indigenous Advanced Light Helicopter (ALH) MK-III, under Coast Guard Region (West). It is the first of five allotted helicopters for 831 Squadron (CG), Ratnagiri, Maharashtra.

Key Features

- **Manufacturer:** Hindustan Aeronautics Limited (HAL).
- **Advanced Systems:** Radar, electro-optical sensors, Shakti engines, glass cockpit, searchlight, advanced communications, Automatic Identification System (AIS) and search-and-rescue homing system.
- **Operational Roles:** Maritime reconnaissance, surveillance and long-range search and rescue; shipborne operations during day and night.
- **Multi-role Capability:** Can be configured with a heavy machine gun for offensive operations or a medical intensive care unit for medical evacuation.

4.12. FACIAL RECOGNITION TECHNOLOGY (FRT)

Context: Debate over FRT has intensified over its use in surveillance and the possibility of evading facial recognition systems.

About FRT

- **Definition:** Biometric technology that identifies or verifies individuals using facial features in images or videos.
- **Working:** AI extracts facial patterns and converts them into numerical representations called face embeddings or templates.
- **1:1 Verification:** Confirms a claimed identity, e.g., smartphone unlocking and airport verification through Digi Yatra.
- **1:N Identification:** Searches CCTV footage or crowds for matches against databases.
- **Accuracy Limitation:** Similarity scores depend on matching thresholds; a match is not conclusive proof of identity.

FRT Evasion: Key Examples

- **CV Dazzle Project (2010):** Artist Adam Harvey explored high-contrast makeup and asymmetrical hairstyles to disrupt facial recognition.
- **Research (2021):** A Ben-Gurion University study demonstrated that machine-generated makeup patterns could bypass FRT software with up to 98% success.

Judicial Observations

- **The Supreme Court** linked FRT deployment to the proportionality principle established in the K.S. Puttaswamy Right to Privacy judgment (2017).
- **It directed law enforcement agencies to restrict** real-time FRT use to existing criminal data, preventing broader crowd surveillance.

Concerns Regarding FRT in India

- **Legal Gaps:** No dedicated statutory framework specifically governs police use of FRT, including watchlists, matching thresholds, data retention and independent audits. The Digital Personal Data Protection Act, 2023 provides a broader personal-data framework.
- **Algorithmic Bias:** Unequal accuracy across demographic groups can cause false positives, wrongful arrests and disproportionate harm to marginalised communities.
- **Privacy:** Mass facial surveillance enables identification, profiling and extensive state monitoring.
- **Fundamental Rights:** Surveillance fears may discourage peaceful assembly protected under Article 19 of the Constitution.

4.13. REORGANISATION OF THE CENTRAL INDUSTRIAL SECURITY FORCE (CISF)

Context: The Ministry of Home Affairs (MHA) approved a major CISF restructuring, effective 1 November 2026, to improve sector-specific security and operational coordination.

Key Features

- **Functional Commands:** Replaces eight geographically organised sectors with sector-

specific functional commands, while retaining three specialised sectors.

- **Industrial and Energy Security:** Dedicated commands for coal (Ranchi), steel (Bhilai), petroleum and natural gas (Guwahati), and power (New Delhi and Kolkata).
- **Urban Infrastructure:** The former NCR command becomes the GBMM & MRTS Sector, covering government buildings, museums, monuments and mass rapid transit systems.
- **Port Security:** Creates the West Coast Port Sector (Mumbai) and East Coast Port Sector (Chennai) to secure maritime trade infrastructure.
- **International Maritime Compliance:** CISF designated a Recognised Security Organisation (RSO) for port facilities under the ISPS Code, framed under the IMO and the SOLAS Convention.
- **Unchanged Specialised Sectors:** Aviation, Department of Atomic Energy (DAE) and Department of Space (DoS).
- **Expanded Responsibilities:** Security at high-security correctional facilities in Jammu and Kashmir; nodal agency for aerial security of critical infrastructure.

Central Industrial Security Force (CISF)

- **Establishment:** Established in 1969 under the CISF Act, 1968, initially to protect Public Sector Undertakings (PSUs).
- **Administrative Control:** Central Armed Police Force (CAPF) under the Ministry of Home Affairs.
- **Expanded Mandate:** Protects nuclear and space facilities, defence production units, airports, the Delhi Metro and selected private establishments.
- **Private-Sector Security:** Extended to private establishments through an amendment to the CISF Act following the 2008 Mumbai terror attacks. Examples include Infosys and Reliance Jamnagar.
- **Security Consultancy:** Provides specialised security and fire-protection consultancy to government and private organisations.

4.14. IMPORTANT MILITARY EXERCISES

	Exercise	Countries Involved	Other Important Points
1	SLINEX 2026	India and Sri Lanka	13th edition; held at Visakhapatnam, Andhra Pradesh Launched in 2005. Includes harbour and sea phases. Supports India's MAHASAGAR vision.
2	Nomadic Elephant	India and Mongolia	18th edition; held at Pithoragarh, Uttarakhand, Annual, platoon-level army exercise conducted alternately in both countries. Focuses on counter-insurgency in semi-urban and mountainous terrain under a United Nations mandate.
3	VARUNA	India and France	24th edition; established in 2001. Indian Navy-French Navy bilateral naval exercise.
4	Tarang Shakti 2026	India, Australia, Bangladesh, France, Germany, Greece, Sri Lanka, United Arab Emirates and United States; observers from around 32 countries	Second edition of the Indian Air Force's multinational air exercise; First held in 2024. Conducted at Jodhpur, Rajasthan.

5	Second ASEAN-India Maritime Exercise 2026	India, Philippines and Singapore, with participating naval assets from other ASEAN countries	Conducted in the Philippines; first edition held in Singapore in 2023. Supports MAHASEGAR, ASEAN centrality and the ASEAN Outlook on the Indo-Pacific.	9	AUS-TRAHIND 2026	India and Australia; New Zealand as observer	5th edition; annual army exercise established in 2022 and conducted alternately in both countries. Held at Thiruvananthapuram, Kerala.
6	KAZIND 2026	India and Kazakhstan	9th edition; held at Oskemen, Kazakhstan Focuses on counterterrorism under a United Nations mandate, air mobility, counter-drone operations, cordon-and-search and special helicopter operations.	10	KONKAN-26	India and United Kingdom	Annual bilateral naval exercise institutionalised in 2004. Concluded off Plymouth, United Kingdom. Conducted with the UK Royal Navy's Fleet Operational Standards and Training organisation. Other India-UK exercises: Ajeya Warrior (Army), Indradhanush (Air Force) and Konkan Shakti (Tri-service).
7	Mountain Guardian 2026	India and United Arab Emirates	Joint military exercise held at Chaudhata, Uttarakhand Focuses on mountain warfare, high-altitude operations, drone operations and tactical drills. Includes women officers and combatants.	11	IBSAMAR IX 2026	India, Brazil and South Africa	9th edition of the trilateral naval exercise under the IBSA framework; conducted biennially since 2008. Theme: Stronger Together Towards a Shared Future in the Maritime Domain.
8	SAREX-2026	India, with observers from 30 countries	12th National Maritime Search and Rescue Exercise organised by the Indian Coast Guard off Paradip, Odisha. Involves the Indian Coast Guard, Navy and Air Force.				

ENVIRONMENT AND GEOGRAPHY

1. ISSUES WITH RIVER-LINKING PROJECTS

Context: At the **Southern Zonal Council meeting in Mamallapuram**, the Union Home Minister proposed linking the Brahmaputra with the Godavari and Cauvery for long-term water security.

- The **Pennaiyar and Mokedatu disputes** highlight inter-State water-sharing challenges and the need to balance supply augmentation with water conservation.

Potential Benefits

- **Regional water security:** Transfers water to deficit regions; the Ken-Betwa Link Project targets drought-prone Bundelkhand in Madhya Pradesh and Uttar Pradesh.
- **Agricultural growth:** Expands irrigation, crop diversification and farm incomes, as demonstrated by the Indira Gandhi Canal.
- **Flood and drought management:** May divert excess water towards water-scarce regions and improve resilience.
- **Urban and industrial supply:** Addresses shortages in cities and industries, as illustrated by the Krishna Water Supply Project.
- **Economic development:** Generates employment and supports infrastructure, irrigation and regional development.
- **Integrated river-basin management:** Encourages coordinated water planning across State boundaries.



Major Concerns

- **Ecological disruption:** Alters natural flows, aquatic biodiversity, fish migration, sediment transport, groundwater recharge and wetlands. Kerala opposes the Pamba-Achankovil-Vaippar Link over potential impacts on the Vembanad wetland ecosystem.
- **Inter-State disputes:** Tamil Nadu seeks a tribunal over Karnataka's alleged violation of the 1892 agreement in the Pennaiyar dispute. Tamil Nadu also opposes Karnataka's Mokedatu project over downstream water availability.

- **Federal and institutional constraints:** Competing State interests delay projects. The Inter-State River Water Disputes Act, 1956, provides for tribunals, but delays in their constitution and award implementation persist.
- **Displacement:** Land acquisition threatens tribal and local livelihoods. The Ken–Betwa project faces concerns over displacement and environmental damage.
- **High costs and complexity:** Large investments, engineering challenges, long gestation periods and maintenance requirements constrain implementation.
- **Climate uncertainty:** Changing rainfall, glacier behaviour and river flows undermine fixed classifications of basins as water-surplus or water-deficit.
- **Supply-side bias:** Excessive reliance on engineering projects may divert attention from conservation, watershed management and demand reduction.

Way Forward

- **Scientific planning:** The National River Linking Project (NRLP) and ILR Programme should incorporate transparent, participatory basin-level assessments by the NWDA, covering ecological and social sustainability.
- **Cooperative federalism:** Strengthen Centre–State coordination and timely dispute resolution under the Inter-State River Water Disputes Act, 1956. Article 262 empowers Parliament to provide for adjudication of inter-State river-water disputes.
- **Ecological safeguards:** Integrate environmental impact assessments, climate-risk analysis and fair rehabilitation into projects such as Ken–Betwa.
- **Demand management:** Prioritise micro-irrigation, groundwater conservation, rainwater harvesting, watershed management and restoration of traditional water bodies.
- **Community participation:** Involve farmers, local communities, experts and civil society in river-basin planning and conservation.

Conclusion: Sustainable water security requires balancing river inter-linking with ecological integrity, cooperative federalism, basin-level planning and demand-side conservation.

Major Inter-Basin Water Transfer Projects		
Project	States involved	Key features
 Mullaperiyar Dam	Kerala → Tamil Nadu	• Transfers Periyar basin water to the Vaigai basin for irrigation and drinking water in Tamil Nadu.
 Parambikulam–Aliyar Project (PAP)	Kerala → Tamil Nadu	• Diverts Western Ghats rivers through multiple reservoirs for irrigation, demonstrating inter-State water-sharing arrangements.
 Krishna Water Supply Project	Maharashtra → Karnataka → Andhra Pradesh → Telangana	• Supplies Krishna River water to Hyderabad for drinking purposes.
 Indira Gandhi Canal Project	Rajasthan → Punjab → Haryana	• Transfers Sutlej–Beas system water to arid Rajasthan , expanding irrigation and agriculture.

Test Your Knowledge

Prelims Corner

Consider the following statements regarding Interlinking of Rivers (ILR) in India:

1. The National Perspective Plan identified 30 major river links comprising both Himalayan and Peninsular components.
2. The National Water Development Agency was established to study the feasibility of river-linking projects.
3. River interlinking can eliminate the need for demand-side water management measures such as groundwater conservation and micro-irrigation.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (a) 1 and 2 only

Mains Corner

Q. River interlinking projects can enhance water security but also pose significant ecological, social and federal challenges. Discuss the need for a balanced approach to river interlinking in India.

(15 marks, 250 words)

2. DROUGHT MANAGEMENT IN INDIA

Context: Maharashtra declared drought in 265 of 358 talukas, covering nearly 74% of the state's area, due to deficient monsoon rainfall. Karnataka, Telangana, Andhra Pradesh and parts of Rajasthan also face water stress.

- India supports 18% of the global population with only 4% of global freshwater resources.

About Drought

1 Definition

Prolonged **precipitation deficit** causing water shortages and harming vegetation, animals and people.

2 Drought Atlas of India (1901–2020)

Severe - Exceptional
Moderate
Mild
Not prone

- Nearly **two-thirds** of India is drought-prone.
- Around **56%** of the area experienced moderate to exceptional drought, affecting **300 million people** and **150 million cattle**.
- Crop losses caused **USD 8.7 billion** in economic losses.
- Reduced agricultural GDP by **3.1%**.

3 Changing patterns

- Even **high-rainfall regions** face water scarcity.
- Cherrapunji (Meghalaya)** reportedly experiences drought for nearly **nine months** annually.
- Jaisalmer (Rajasthan)** receives around **9 centimetres** of annual rainfall.

Major Types of Drought

1 Meteorological Drought

- Prolonged rainfall below the **long-term average**; generally the first stage.
- A **26–50%** rainfall deficit indicates **moderate drought**, while a deficit **exceeding 50%** indicates **severe drought**.

2 Agricultural Drought

- Insufficient rainfall and soil moisture for crop growth.
- During the **mid-May to mid-October Kharif season**, criteria include **four consecutive weeks** of severe meteorological drought, with over **50% rainfall deficiency** or **weekly rainfall of 5 centimetres or less**.
- Outside this period, the criterion is **six consecutive weeks**.

3 Hydrological Drought

- Inadequate surface and groundwater availability** due to low reserves or excessive withdrawals, even when rainfall is normal or above normal.

The Manual of Drought Management, 2009, issued by the Union Ministry of Agriculture, identifies three major types.

Drought Declaration in India

- Authority:** State governments have the final authority to declare drought.
- Guidelines:** Manual for Drought Management, 2009, and National Disaster Management Authority (NDMA) Guidelines for Management of Drought, 2010. Both are advisory, allowing State-specific criteria.
- Traditional assessment:** Annewari, Paisewari and Girdawari estimate post-harvest crop losses.
- Key indicators under the 2009 Manual:**

- **Rainfall deficiency:** June–September rainfall below 75% of average, or June–July rainfall below 50%.
- **Sowing area:** Less than 50% of cultivable area sown by July–August.
- **Normalized Difference Vegetation Index (NDVI):** Satellite-based vegetation assessment; a deviation of 0.4 or less from normal may indicate drought. Used in the National Agricultural Drought Assessment and Monitoring System (NADAMS).
- **Moisture Adequacy Index (MAI):** Measures water balance using actual and potential evapotranspiration; below 25 indicates severe agricultural drought.

Relief and Institutional Framework

- **Financial assistance:** State Disaster Response Fund (SDRF) provides initial assistance. Once exhausted, an Inter-Ministerial Central Team assesses losses for additional assistance from the National Disaster Response Fund (NDRF).
- **Institutions:** Ministry of Agriculture and Farmers' Welfare is the nodal ministry for drought; the Ministry of Home Affairs handles relief for most natural disasters.
- **Supreme Court, Swaraj Abhiyan v. Union of India (2016):** Recognised drought as a disaster under the Disaster Management Act, 2005, and linked timely drought declaration with Article 21, concerning the right to life and dignified living.

Major Challenges

- **Relief-centric approach:** Tankers and fodder assistance often receive priority over long-term drought-proofing.
- **Delayed declaration:** Dependence on post-harvest crop assessments delays early warnings and SDRF assistance.
- **Fragmented governance:** Separate management by the Central Water Commission (CWC) and Central Ground Water Board (CGWB) weakens integrated water planning.
- **Limited micro-irrigation:** High initial costs restrict drip and sprinkler adoption, particularly among marginal farmers, despite the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).
- **Non-binding guidelines:** Advisory drought guidelines create variations among States in declaration criteria and timing.

Measures to Strengthen Drought Management

- **Crop diversification:** Promote drought-resistant millets (Shree Anna), pulses and oilseeds



through appropriate MSP and procurement support; align crops with regional agro-climatic conditions.

- **Scientific monitoring:** Strengthen NADAMS and use NDVI and MAI data for objective drought assessment.
- **Efficient irrigation:** Expand the Per Drop More Crop component of PMKSY.
- **Integrated water governance:** Implement the Mihir Shah Committee (2016) recommendation for a unified National Water Commission to manage surface and groundwater.
- **Decentralised groundwater management:** Empower Gram Panchayats to monitor village-level groundwater extraction, building on the Atal Bhujal Yojana.
- **Community conservation:** Use VB-GRAM G Act, 2025, and Jal Shakti Abhiyan funds for tank desilting, check dams, rainwater harvesting and restoration of traditional water systems.

Conclusion: Drought resilience requires water-efficient agriculture, scientific monitoring, integrated water governance and decentralised conservation to strengthen long-term water security, food security and livelihoods.

Test Your Knowledge	
Prelims Corner <p>Consider the following statements regarding drought management in India:</p> <ol style="list-style-type: none"> 1. Hydrological drought can occur even when rainfall is normal or above normal. 2. The State Government is the final authority for declaring an area drought-affected. 3. The Manual for Drought Management, 2009 and the NDMA Guidelines for Management of Drought, 2010 are legally binding on all States. 4. The National Disaster Response Fund (NDRF) is the first source of financial assistance for drought relief. <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 1, 2 and 3 only (c) 2 and 4 only (d) 1, 2, 3 and 4</p> <p>Answer: (a) 1 and 2 only</p>	Mains Corner <p>Q. Drought in India is increasingly shaped by both climatic variability and human-induced water stress. Discuss the major challenges in India's drought management and suggest measures to shift from relief-centric responses to long-term drought resilience.</p> <p>(15 marks, 250 words)</p>

3. BIODIVERSITY CONSERVATION IN INDIA

Context: The World Wide Fund for Nature (WWF) and Zoological Society of London (ZSL) released the Living Planet Report 2026, titled "The Science of Hope", using the Living Planet Index (LPI) to track wildlife population trends.

India's Biodiversity Profile

- India occupies **2.4% of global land** area but hosts nearly **8% of global flora** and **7.5% of fauna**.
- One of **17 megadiverse countries**, India contains parts of **four** of the world's 36 biodiversity hotspots.
- Around **28% of plant species** and **over 30% of animal** species are endemic.
- Of 7,516 Indian animal species assessed by the International Union for Conservation of Nature (IUCN), 1,012 are threatened, classified as Vulnerable, Endangered or Critically Endangered.
- **Assessments** cover only 7.2% of documented animal diversity.
- **National Red List Assessment Initiative (2025–2030):** Launched at the 2025 IUCN World Conservation Congress in Abu Dhabi to address data gaps and prepare indigenous National Red Data Books for flora and fauna by 2030.



Challenges in Wildlife Conservation

- **Habitat fragmentation:** Roads, railways and canals restrict animal movement, disrupt genetic exchange and cause wildlife deaths, including elephant-train collisions.
- **Human-wildlife conflict:** Shrinking habitats push wildlife into human settlements, causing crop and livestock losses and retaliatory killings.
- **Invasive alien species:** Lantana camara and Prosopis juliflora degrade native forests and reduce herbivore habitat capacity.
- **Poaching and illegal trade:** Organised trade in pangolins, star tortoises and exotic birds remains lucrative despite declining poaching of large mammals.
- **Climate change:** Irregular monsoons, forest fires and rising sea levels threaten habitats, including those of Sundarbans tigers.

Measures for Effective Conservation

- **Community participation:** Implement Conservation Reserve and Community Reserve provisions under Sections 36C and 36D of the Wild Life (Protection) Amendment Act, 2022, alongside Community Forest Resource (CFR) rights under the Forest Rights Act (FRA), 2006.
- **Scientific monitoring:** Expand M-STrIPES smart patrolling and electronic surveillance beyond tiger reserves. Strengthen frontline staff training in wildlife forensics, Geographic Information System (GIS)-based habitat mapping and invasive-species removal.
- **Global targets and finance:** Update India's National Biodiversity Strategy and Action Plan (NBSAP) to meet the KMGBF's 30x30 target, conserving 30% of land and sea areas by 2030. Mobilise the Global Biodiversity Framework Fund (GBFF) and corporate social responsibility (CSR) funds under the Companies Act, 2013.
- **Nature-positive finance:** Reform harmful subsidies and address the annual biodiversity financing gap of approximately USD 1.3 trillion.

- **Infrastructure and funding:** Integrate wildlife corridors into infrastructure planning through PM Gati Shakti. Ensure timely State Compensatory Afforestation Fund Management and Planning Authority (CAMPA) funding alongside the revamped Integrated Development of Wildlife Habitats (IDWH) scheme.



- **Neglected species:** Implement the National Wildlife Action Plan (NWAP) 2017–2031 and expand dedicated funding for species such as the Great Indian Bustard, dugong and caracal.

Conclusion: Reversing biodiversity loss requires science-led conservation, community participation, dedicated funding and nature-positive investment. Integrating ecological priorities into development is essential for resilient ecosystems and achieving global biodiversity targets.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>Consider the following statements regarding the Living Planet Index (LPI):</p> <ol style="list-style-type: none"> 1. It measures changes in the relative abundance of monitored wildlife populations. 2. Freshwater ecosystems recorded a greater decline than terrestrial and marine ecosystems between 1970 and 2022. 3. A decline in the LPI directly indicates that the same percentage of global animal species has become extinct. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Answer: (a) 1 and 2 only</p>	<p>Q. The rapid decline in global biodiversity highlights the need to integrate conservation with economic development and community participation. Discuss the major drivers of biodiversity loss and suggest measures to strengthen wildlife conservation in India.</p> <p style="text-align: right;">(15 marks, 250 words)</p>

4. PERSISTENCE OF STUBBLE BURNING IN NORTH INDIA

Context: Recurring stubble burning in Punjab, Haryana and parts of Uttar Pradesh worsens air pollution in Delhi–National Capital Region (NCR). Economic, technological and policy constraints hinder sustainable crop-residue management.

- Burning crop residues left after harvesting, mainly paddy straw during October–November, to clear fields for wheat sowing. The short interval between harvesting and sowing encourages the practice.

Reasons for the Persistence of Stubble Burning

- **Minimum Support Price (MSP):** Assured rice and wheat procurement and subsidised electricity encourage intensive rice–wheat cultivation, generating large quantities of paddy straw.
- **Short sowing window:** The Punjab Preservation of Sub-Soil Water Act, 2009, delays paddy transplantation to conserve groundwater, shifting harvesting towards late October and early November and leaving only 10–15 days for wheat sowing.
- **Long-duration varieties:** PUSA-44 takes approximately 150–160 days to mature, further delaying harvesting.
- **Mechanised harvesting:** Combine harvesters leave standing stubble and loose straw, requiring additional machinery for removal.
- **Low cost and convenience:** Burning is quicker and cheaper than incorporation, shredding or baling.
- **Temporary weed control:** Burning destroys some surface weeds, seeds and pests but is unsustainable.
- **Limited alternatives:** Inadequate machinery, composting facilities and biomass industries encourage open-field burning.

Impacts of Stubble Burning

- **Air pollution:** Releases particulate matter (PM10 and PM2.5), nitrogen oxides (NOx), methane (CH₄), carbon monoxide (CO) and volatile organic compounds (VOCs), worsening smog and respiratory diseases, including asthma, bronchitis and chronic obstructive pulmonary disease (COPD).
- **Climate change:** Greenhouse gas emissions contribute to global warming.
- **Soil degradation:** Reduces organic matter, nitrogen and sulphur, damages beneficial microorganisms and lowers surface moisture, potentially increasing fertiliser dependence.

Challenges in Controlling Stubble Burning

- **Technology and infrastructure:** Shortages of Crop Residue Management (CRM) machinery at Custom Hiring Centres (CHCs), high silica content in paddy straw and inadequate collection, storage and transport constrain utilisation.
- **Economic constraints:** High purchase and rental costs, seasonal machinery use, transport expenses and uncertain straw prices discourage alternatives, especially among smallholders.
- **Limited diversification:** Rice–wheat procurement incentives and subsidised electricity perpetuate water-intensive cropping.
- **Policy and enforcement gaps:** Uneven enforcement and penalties without adequate financial support weaken farmer cooperation.
- **Monitoring limitations:** Polar-orbiting satellites, including the Moderate Resolution Imaging Spectroradiometer (MODIS) and Visible Infrared Imaging Radiometer Suite (VIIRS), may miss fires occurring between observations. Fire counts may not accurately represent burned areas.
- **Limited awareness:** Inadequate training, demonstrations and technical guidance restrict adoption of sustainable residue management.



Strategies to Curb Stubble Burning

- **Reform incentives and enforcement:** Combine financial support, awareness and proportionate penalties. Consider a minimum remunerative price for paddy straw covering collection and transportation costs.
- **Promote crop diversification:** Encourage pulses, oilseeds and millets through procurement reforms; promote short-duration paddy and DSR to reduce sowing-time pressure.
- **Strengthen infrastructure:** Develop real-time crop mapping, harvest forecasting, village-level biomass aggregation, storage, transport networks and adequately equipped CHCs.
- **Scale sustainable technologies:** Expand Happy Seeders, Super Seeders, Pusa Decomposer, mulching and soil incorporation. Promote suitable uses in fodder, manure, packaging, biofuels and power generation.
- **Create viable markets:** Ensure remunerative straw prices and performance-based incentives that cover farmers' collection, labour and transport costs.
- **Strengthen community participation:** Converge suitable activities with the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), support cooperatives and involve Panchayati Raj Institutions (PRIs) in local collection and village-level incentives.

Conclusion: Curbing stubble burning requires aligning farmer incentives with crop diversification and circular bioeconomy solutions. Affordable machinery, assured biomass markets, community participation and scientific monitoring can protect public health and promote sustainable agriculture.

Test Your Knowledge

<div style="display: flex; align-items: center;"> <div> <h4 style="margin: 0;">Prelims Corner</h4> </div> </div>	<div style="display: flex; align-items: center;"> <div> <h4 style="margin: 0;">Mains Corner</h4> </div> </div>
<p>Question: With reference to stubble burning in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Crop Residue Management (CRM) Scheme provides 50% financial assistance to individual farmers and 80% assistance for eligible Custom Hiring Centre projects, subject to prescribed limits. 2. The Happy Seeder enables wheat sowing in fields containing paddy residues without requiring their prior burning. 3. Satellite-based fire monitoring using MODIS and VIIRS can detect all stubble-burning incidents irrespective of satellite observation times. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (a) 1 and 2 only</p>	<p>Q. Stubble burning in North India is not merely an environmental problem but also a consequence of agricultural incentives and structural constraints faced by farmers. Examine the causes and impacts of stubble burning and suggest sustainable, economically viable solutions to address it. (15 marks, 250 words)</p>

5. CLIMATE RISK INSURANCE IN INDIA

Context: The 2026 southwest monsoon highlighted India's vulnerability to extreme weather, with El Niño, regional rainfall deficits and localised heavy rainfall underscoring the need for climate risk insurance.



Challenges in Climate Disaster Insurance

- **Unaffordable risk-based premiums:** Localised risk mapping identifies vulnerable areas but may increase premiums precisely where protection is most needed. RMSI uses 80,000 simulated flood events across 28 river basins and 19,000 pin codes.
- **Weak underwriting:** Despite advanced models from Moody's and Aon, inadequate risk assessment and artificially low premiums in parts of the market may underestimate long-term climate risks.
- **Interconnected economic losses:** Crop failures, infrastructure damage and supply-chain disruptions affect multiple sectors, disproportionately harming farmers, low-income households and marginalised communities. Over 80% of Indians live in climate-vulnerable districts.

- **Modelling-to-protection gap:** RMSI's India FloodRisk Model covers over 19,000 PIN codes and simulates 80,000 flood events. Its India Cyclone Hazard Model provides 1 kilometre by 1 kilometre risk mapping and advanced cyclone forecasting. Affordable insurance remains a challenge despite these capabilities.

Measures to Strengthen Climate Risk Protection

- **National catastrophe insurance pool:** UNDP–NDMA proposed pooling public funds, domestic insurers and global reinsurers to spread losses and lower premiums. WRI found USD 1 invested in 320 adaptation projects across 12 countries could yield over USD 10.50 in benefits within ten years.
- **Parametric insurance:** Trigger automatic payouts when predefined thresholds are crossed, e.g., rain-fall above 200 mm/24 hours or cyclone winds above 150 km/h, enabling quick DBT.
- **Targeted subsidies:** Subsidise premiums for BPL households and marginal farmers; charge wealthier coastal owners risk-based premiums.
- **Affordable microinsurance:** Use the Jan Dhan–Aadhaar–Mobile (JAM) trinity to insure rural communities and informal workers at low cost.
- **Climate-resilient planning:** Restrict construction in floodplains and low-lying areas through zoning; insurance must complement, not replace, adaptation.

Best Practices in Parametric Insurance

- **Regional risk pooling:** The African Risk Capacity (ARC) pools climate risks across countries to distribute losses and reduce premiums.
- **Anticipatory payouts:** Fiji and Samoa use cyclone forecasts to trigger payouts for evacuation and disaster preparedness before impacts occur.
- **Multi-year coverage:** Nagaland uses disaster mitigation funds to purchase multi-year parametric insurance against landslides and extreme rainfall.
- **Climate-linked microfinance:** Rajasthan and Uttar Pradesh use a water balance index to provide automatic loan support to women smallholder farmers during droughts.

Conclusion: Climate resilience requires risk pooling, affordable premiums, anticipatory financing and climate-resilient planning. Inclusive insurance can protect vulnerable communities while strengthening disaster preparedness and economic stability.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Question: With reference to climate risk insurance in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. Parametric insurance provides payouts when predefined weather-related triggers are breached, without requiring individual damage assessments. 2. Under the Pradhan Mantri Fasal Bima Yojana (PMFBY), government subsidies cover approximately 85–90% of premiums. 3. A national catastrophe risk insurance pool would concentrate disaster-related losses on individual insurers rather than distribute them among multiple stakeholders. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (a) 1 and 2 only</p>	<p>"Climate risk insurance is essential for strengthening India's disaster resilience, but affordability and unequal access remain major challenges." Examine the challenges in expanding climate risk insurance in India and suggest measures to ensure inclusive and effective disaster risk financing. (15 marks, 250 words)</p>

6. POINTERS FOR PRELIMS

6.1. NEW WILD CAT SPECIES 'TILCAYO' IDENTIFIED IN BOLIVIA

Context: Leopardus tilcayo, the first formally described living cat species in over 100 years.

- **Discovery:** Rescued kitten found in 2016; genomic studies confirmed a distinct species.
- **Features:** About 46 cm long, 1.4 kg; light-brown fur with rosette-like patterns; smaller than a domestic cat.
- **Taxonomy:** Belongs to the tiger cat group of the Leopardus genus. Named after the local term "Tilcayo".
- **Behaviour:** Likely nocturnal and feeds on small rodents; ecology remains poorly understood.
- **Habitat:** Yungas cloud forests on the eastern slopes of the Andes in Bolivia.
- **Conservation:** May receive a separate IUCN assessment.
- **Threats:** Deforestation, agricultural expansion, forest fires and mining.

6.2. UPASI TEA RESEARCH FOUNDATION COMPLETES 100 YEARS

Context: Centenary Conference held in Coonoor, Tamil Nadu, on 21–22 September 2026.

- **Location:** Coonoor, Nilgiris district, Tamil Nadu.
- **Role:** Research arm of the United Planters' Association of Southern India (UPASI); focuses on tea cultivation, production and processing.
- **Funding:** Ministry of Commerce and Industry through the Tea Board of India.
- **Research Network:** One of three major tea research organisations recognised by the Tea Board, alongside the Tea Research Association (Tocklai).
- **Extension Services:** Supports tea growers across Tamil Nadu, Kerala and Karnataka.

6.3. INTERNATIONAL CONFERENCE ON ENVIRONMENT AND CLIMATE DYNAMICS

Context: Organised by the National Green Tribunal (NGT) in New Delhi; inaugurated by the Prime Minister.

Conference Highlights

- **Participation:** Experts and jurists from 17 countries, with UNEP and ADB representatives.
- **Focus:** Climate change, development, environmental justice, knowledge exchange and global cooperation.

Key Points from PM's Address

- **Climate Equity:** India's per capita GHG emissions were 2.9 tCO₂e in 2022, against the global average of 6.6 tCO₂e (UNEP Emissions Gap Report 2024).
- **CBDR-RC:** Common But Differentiated Responsibilities and Respective Capabilities recognises countries' differing historical emissions and capacities.
- **Paris Agreement:** India achieved its original COP21 NDC targets ahead of 2030 and crossed 50% non-fossil electricity capacity.

6.4. 3,261 FLOWERING PLANT SPECIES RECORDED IN AGASTHYAMALAI BIOSPHERE RESERVE

Floral Diversity

- **Checklist:** Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Thiruvananthapuram, recorded 3,261 species, 26 subspecies and 28 varieties, across 1,139 genera and 190 families.
- **Major Families:** Fabaceae, Rubiaceae, Poaceae and Orchidaceae.
- **Endemism:** 1,018 taxa (31.2%) endemic to India, including 245 restricted to specific habitats.
- **Regional Links:** 347 taxa shared with Sri Lanka; some plants resemble tropical American flora.

About Agasthyamalai Biosphere Reserve (ABR)

- **Location:** Southern Western Ghats, across Kerala and Tamil Nadu; approximately 3,500 sq. km.
- **South Indian Biosphere Reserves:** Nilgiri, Gulf of Mannar, Agasthyamalai and Seshachalam Hills.

- **UNESCO:** Added to the World Network of Biosphere Reserves in 2016.
- **Wildlife:** Lion-tailed macaque, Bengal tiger, Nilgiri tahr, Nilgiri marten, gaur and sloth bear.
- **Unique Flora:** Neelakurinji (*Strobilanthes kunthiana*) flowers once every 12 years.
- **Indigenous Community:** Kani tribe.

building, water-quality monitoring and digital platforms.

6.6. WORLD CIRCULAR ECONOMY FORUM 2026

Context: Held in Gandhinagar, Gujarat, under the theme “Circular Economy: Transition for People and Prosperity.” First edition hosted in South Asia.

About WCEF

- **World Circular Economy Forum (WCEF):** Global platform for governments, businesses, researchers and civil society to promote circular solutions.
- **Organisers:** Central Pollution Control Board (CPCB), Ministry of Environment, Forest and Climate Change (MoEFCC), Government of Gujarat, Gujarat Pollution Control Board (GPCB) and Finnish Innovation Fund Sitra.
- **Themes:** People, business, governance and growth.

Circular Economy

- **Meaning:** Reduces waste and extends product life through reuse, repair, refurbishment, remanufacturing and recycling.
- **Objective:** Keeps resources in use longer, reduces dependence on the linear “take, make, dispose” model and promotes resource efficiency.

India's Policy Framework

- **Measures:** Waste-management rules, Extended Producer Responsibility (EPR) and digital compliance systems.
- **Mission LiFE:** Lifestyle for Environment (LiFE): Promotes sustainable consumption and circular practices in daily life.
- **Global Cooperation:** Resource Efficiency and Circular Economy Industry Coalition (RE-CEIC): Launched during India's G20 Presidency to advance international cooperation on resource efficiency and circular economy.

6.5. 9TH INDIA INTERNATIONAL WATER WEEK (IIWW) 2026

Context: Concluded at Bharat Mandapam, New Delhi, under the theme “Climate-Resilient Water Management.”

About IIWW

- **Launch:** India Water Week began in 2012 under the Ministry of Jal Shakti; renamed IIWW in 2026.
- **Purpose:** Promotes sustainable water management through global cooperation and innovation.

River and Reservoir Management

- **Sustainable Urban River Management Framework (SURM):** Supports river pollution control, sustainable urban growth and river health; extends Urban River Management Plans into a global model.
- **AI/ML-based Reservoir Sediment Management:** Forecasts sediment accumulation to improve storage, hydropower generation and dam longevity.

Key Initiatives

- **Riverine Macroplastics Monitoring Protocol:** National Mission for Clean Ganga initiative to standardise monitoring of large plastic waste in rivers.
- **Irrigation Atlas:** Central Water Commission initiative using GIS-based mapping of river basins and water infrastructure for planning.

WASH Conference

- **2nd India International WASH Conference:** Focused on Water, Sanitation and Hygiene.
- **India-Africa WASH Roundtable:** Diplomats from 22 African countries discussed capacity

6.7. WORLD RHINO DAY 2026

Context: Observed on 22 September; theme “Keep the Five Alive.” The International Rhino Foundation (IRF) released its 2026 State of the Rhino Report.

Key Findings

- **Global Population:** Approximately 26,700 rhinos across five species. Data sourced from the International Union for Conservation of Nature (IUCN) specialist groups and TRAFFIC.
- **Black Rhino:** Population increased from 6,195 (2022) to 6,788 (2024).
- **Greater One-Horned Rhino:** Population reached around 4,075.
- **White Rhino:** Population declined from 17,464 (2023) to 15,752 (2024), mainly due to poaching in South Africa.
- **Javan Rhino:** Critically endangered; poaching caused sharp declines during 2019–2023.
- **Sumatran Rhino:** Threatened by habitat loss and reproductive difficulties; captive breeding offers hope.

India's Rhino Conservation

- **Species:** Greater One-Horned Rhino, mainly found in Kaziranga National Park, Assam.
- **Zero Poaching:** Assam recorded zero known rhino poaching in 2025, the second such achievement since the 1970s. Nepal also recorded zero poaching in 2025, its tenth such achievement since 2011.
- **Population Growth:** Dudhwa Tiger Reserve, Uttar Pradesh, recorded an increase from 42 rhinos in 2022 to 53. Jaldapara and Gorumara National Parks, West Bengal, recorded a 50% rise over a decade.
- **New Delhi Declaration on Asian Rhinos:** Adopted by India, Bhutan, Nepal, Indonesia and Malaysia.
- **DNA Profiling:** Helps identify individual rhinos and investigate wildlife crimes.
- **National Rhino Conservation Strategy:** Launched in 2019 to conserve the Greater One-Horned Rhinoceros.

6.8. CHEETAH CUBS BORN AT KUNO NATIONAL PARK

Context: India-born female cheetah KGP12 gave birth to four cubs at Kuno National Park (KNP), Madhya Pradesh, taking India's cheetah population to 56.

Project Cheetah

- **Launch:** September 2022; reintroduces cheetahs after their extinction in India in 1952.
- **Sources:** Namibia (2022), South Africa (2023) and Botswana (2026).
- **Implementation:** National Tiger Conservation Authority (NTCA), under the Ministry of Environment, Forest and Climate Change (MoEFCC), with Madhya Pradesh Forest Department and Wildlife Institute of India (WII).
- **Potential Habitats:** Veerangana Durgavati Tiger Reserve and Nauradehi Wildlife Sanctuary in Madhya Pradesh; Banni Grasslands in Gujarat.

6.9. INDIA'S FIRST LIQUEFIED NATURAL GAS-POWERED TRAIN

Context: Flagged off from Sabarmati Railway Station, Ahmedabad, on 27 September 2026; railway projects worth ₹1,472 crore were also launched.

LNG-Based Operations

- **Technology:** Dual-fuel system combining diesel and Liquefied Natural Gas (LNG) in Driving Power Cars (DPCs).
- **Capacity:** Two 1,400-horsepower DPCs modified at Sabarmati Integrated Coaching Depot.
- **Fuel Savings:** LNG can replace around 40% of diesel consumption.
- **Benefits:** Lower carbon dioxide (CO₂), nitrogen oxides (NO_x) and particulate emissions; reduced fuel costs.

Safety and Connectivity

- **Kavach:** Train protection system deployed on Sabarmati–Kalol–Sabarmati section at ₹48 crore; expansion planned on Ahmedabad–Palanpur and Ahmedabad–Samakhiali sections.
- **Railway Doubling:** Sabarmati–Sarkhej line to improve capacity and connectivity.

- **Freight:** First long-haul double-stack container train trialled between Jawaharlal Nehru Port, near Mumbai, and Vadodara.

6.10. UN DECLARATION ON SEA-LEVEL RISE

Context: India welcomed the declaration adopted at the 81st session of the United Nations General Assembly (UNGA), emphasising climate equity and support for vulnerable countries.

Key Provisions

- **Causes:** Greenhouse gas emissions, melting land ice and thermal expansion of seawater. Global sea levels rose by 5.9 mm in 2024.
- **Maritime Zones:** Seeks to preserve maritime zones under the United Nations Convention on the Law of the Sea (UNCLOS), including territorial waters and Exclusive Economic Zones (EEZs).
- **Adaptation:** Calls for resilient infrastructure, early-warning systems, climate adaptation and increased adaptation finance.

India's Position

- **Climate Equity:** Emphasises Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) and climate justice.
- **Vulnerability:** Over 350 million people depend on India's marine economy and coastal resources.
- **Sea-Level Projection:** Indian National Centre for Ocean Information Services (INCOIS) projects a relative mean sea-level rise of 0.5–1 metre along India's coast by 2100.
- **Major Risks:** Storm surges, coastal flooding, erosion, permanent inundation and saltwater intrusion.
- **Vulnerable Areas:** Mumbai, Chennai, Kolkata, Sundarbans, Lakshadweep and Andaman and Nicobar Islands.

6.11. INDIA'S FIRST PORT-BASED E-METHANOL FACILITY AT KANDLA

Context: Foundation stone laid at Deendayal Port Authority (DPA), Kandla, Gujarat, for India's first port-based e-methanol plant.

- **Investment:** ₹2,300 crore joint venture between DPA and Assam Petro-Chemicals Limited (APCL), with a 76:24 contribution ratio.
- **Capacity:** 150 tonnes/day using renewable energy, water and biogenic carbon dioxide (CO₂).
- **Production Phases:** Phase I, 50 tonnes/day at ₹1,200 crore by January 2027; Phase II, additional 100 tonnes/day at ₹1,100 crore by March 2027.
- **E-Methanol:** Produced using green hydrogen and captured CO₂ powered by renewable energy.
- **Economics:** Target production cost of US\$750/tonne against a global cost of about US\$1,300/tonne; expected to create over 3,500 jobs.
- **Maritime Goals:** Add 100 merchant ships within five years and become a top-five ship-owning nation by 2047.

6.12. DELHI'S PROACTIVE AIR QUALITY MANAGEMENT FRAMEWORK 2026–27

Context: Delhi's year-round and seasonal pollution-control framework complements the existing Graded Response Action Plan (GRAP).

Key Measures

- **Vehicles:** Restricts entry of non-Delhi vehicles below Bharat Stage VI (BS-VI) standards during winter, with exemptions for Compressed Natural Gas (CNG), Electric Vehicles (EVs) and emergency services.
- **Fuel Restrictions:** Automatic Number Plate Recognition (ANPR) cameras support denial of fuel to end-of-life vehicles and vehicles without a valid Pollution Under Control Certificate (PUCC).
- **Parking and Offices:** Doubled municipal parking charges at authorised public sites, except metro facilities; 50% office attendance with work-from-home arrangements and staggered timings.
- **Construction and Dust:** Phased construction restrictions, mechanised road sweeping and water sprinklers with chemical dust suppressants.

- **Monitoring:** Artificial Intelligence (AI)-enabled control centre operational from 1 October 2026, supported by 334 enforcement teams; monitoring stations to increase from 47 to 60.
- **Citizen Participation:** Green Delhi App and citizen feedback portal.

Graded Response Action Plan (GRAP)

- **Origin:** Formally notified in 2017 following Supreme Court directions in M.C. Mehta v. Union of India (2016).
- **Implementation:** Commission for Air Quality Management (CAQM), with the Ministry of Environment, Forest and Climate Change (MoEFCC) and state authorities.
- **Purpose:** Emergency measures based on the Air Quality Index (AQI) in Delhi-National Capital Region (NCR).

Stage	AQI	Major Measures
I	201-300, Poor	Road-dust control and Pollution Under Control enforcement
II	301-400, Very Poor	Diesel generator restrictions and hotspot action
III	401-450, Severe	Restrictions on BS-III petrol and BS-IV diesel vehicles; construction bans
IV	Above 450, Severe+	Heavy-vehicle restrictions, physical school closures and non-essential industry shutdowns

6.13. INDIA REAFFIRMS COMMITMENT TO CETACEAN CONSERVATION AT IWC-70

Context: India highlighted whale and cetacean conservation at the 70th meeting of the International Whaling Commission (IWC-70) in Hobart, Australia.

International Whaling Commission (IWC)

- **Established:** Under the International Convention for the Regulation of Whaling, signed in Washington, D.C., on 2 December 1946.
- **Mandate:** Regulates whaling and promotes whale conservation.
- **Membership:** 89 member governments; India joined in 1981.
- **IWC-70:** Coincided with the Convention's 80th anniversary.

India's Conservation Framework

- **Legal Protection:** Cetaceans receive the highest level of protection under the Wildlife (Protection) Act, 1972.
- **Marine Protected Areas (MPAs):** Conserve marine biodiversity.
- **Project Dolphin:** Covers dolphins, whales, porpoises and aquatic ecosystems.

6.14. 28TH SESSION OF THE FAO COMMITTEE ON FORESTRY (COFO 28)

Context: India presented its progress in sustainable forest management and ecological restoration at COFO 28 in Rome, Italy.

About COFO

- **Food and Agriculture Organisation (FAO) Committee on Forestry (COFO):** FAO's highest-level intergovernmental statutory body on forestry; comprises 128 FAO members and meets biennially in Rome.
- **Theme:** "Forests for Food, Resilience and Prosperity."
- **Global Role:** Supports the United Nations Decade on Ecosystem Restoration (2021-2030) and proposed UN Decade for Afforestation and Reforestation (2027-2036).

India's Forestry Progress

- **Forest and Tree Cover:** 82.74 million hectares, covering 25.17% of geographical area.
- **Global Ranking:** 9th in total forest area and 3rd in net annual forest area gain (FAO Global Forest Resources Assessment 2025).
- **Bonn Challenge:** Pledged restoration of 26 million hectares by 2030; 21.76 million hectares brought under restoration.

- **Carbon Sink:** Additional sink of 2.29 billion tonnes of CO₂ equivalent by 2021; forests removed around 150 million tonnes of CO₂ annually during 2021–2025.

Major Restoration Initiatives

- **Aravalli Green Wall Project:** Targets restoration of 6.45 million hectares across Gujarat, Rajasthan, Haryana and Delhi to combat land degradation and desertification.
- **MISHTI:** Mangrove Initiative for Shoreline Habitats & Tangible Incomes; restores mangroves and supports coastal resilience and livelihoods.
- **Wetlands:** India has 101 Ramsar Sites.
- **Ek Ped Maa Ke Naam:** Plant4Mother campaign; over 3.5 billion saplings planted.

6.15. INDIA'S FIRST GEOLOGICAL MUSEUM

Context: A world-class geological museum is planned at Bhedaghat–Lamhetaghat, Jabalpur, Madhya Pradesh, showcasing the geological history of the Narmada Valley.

- **Funding:** ₹87 crore sanctioned under Swadesh Darshan 2.0 by the Central Government.
- **Implementation:** Madhya Pradesh Tourism Board; completion targeted for February 2028.
- **Significance:** Promotes geological education, scientific awareness and eco-tourism.

6.16. GREEN ENERGY CORRIDOR PHASE III (GEC-III)

Context: Union Cabinet approved GEC-III with an outlay of ₹1.86 lakh crore to evacuate up to 135 GW of renewable energy by FY 2032–33.

About Green Energy Corridor

- **Ministry:** Ministry of New and Renewable Energy (MNRE).
- **Launch:** 2015, following a 2012 Power Grid Corporation of India Limited (PGCIL) study.
- **Purpose:** Integrates renewable electricity into the grid while maintaining stability.

Earlier Phases

- **Phase I:** Eight States; targets 24 GW renewable integration through 9,700 circuit kilometres of transmission lines and 22,600 megavolt-amperes of substation capacity. Completion targeted by FY 2027.
- **Phase II:** Seven States; targets 20 GW through 10,750 circuit kilometres of lines and 27,500 megavolt-amperes of substation capacity. Implemented during 2021–22 to 2025–26, with Central Financial Assistance (CFA).

GEC-III: Major Features

- **Transmission:** Strengthens InSTS across States and Union Territories to integrate 135 GW of renewable energy.
- **Battery Storage:** Integrates 50 gigawatt-hours of Battery Energy Storage Systems (BESS) to reduce curtailment, manage intermittency and support non-solar-hour demand.
- **Greenfield Projects:** Tariff-Based Competitive Bidding (TBCB) under the Build-Own-Operate-Maintain (BOOM) model.
- **Brownfield Projects:** Existing network upgrades on a Cost Plus Basis (CPB).
- **Implementation:** State Transmission Utilities (STUs), with public and private Transmission Service Providers (TSPs). **Deadline:** FY 2032–33.

6.17. NIYAMGIRI HILLS

Context: Proposed resumption of bauxite mining in Odisha has raised concerns over tribal rights and ecological conservation.

Geographical Features

- **Location:** Eastern Ghats, across Rayagada and Kalahandi districts, Odisha; elevation about 700–1,400 metres.
- **Rivers:** Supports the Vamsadhara (Bansadhara) and Nagavali river systems.

Tribal and Ecological Significance

- **Dongria Kondh:** A Particularly Vulnerable Tribal Group (PVTG) dependent on forests, streams and traditional agriculture.

- **Religious Importance:** Regard Niyamgiri as the abode of their deity, Niyam Raja.
- **Ecology:** Rich forests, perennial streams and wildlife, including leopards, sloth bears and giant squirrels; supports water conservation, carbon sequestration and local climate regulation.

- **Monitoring:** Radio telemetry, camera traps and field observations.
- **Next Step:** Three additional tigers are planned to establish a viable breeding population.

6.18. GANDAK RIVER FLOODS IN BIHAR

Context: Heavy rainfall in Nepal's catchment caused the Gandak to swell, breaching embankments in Bihar, particularly West Champaran.

River Profile

- **Nature:** Transboundary Himalayan river, known as the Narayani in Nepal; tributary of the Ganga.
- **Origin and Course:** Originates near the Tibet–Nepal border, flows through Nepal and enters India near the Triveni region, reaching Bihar near Valmikinagar.
- **Confluence:** Joins the Ganga near Hajipur–Sonepur (Harihar Kshetra), Bihar.
- **Major Tributaries:** Kali Gandaki, Trishuli, Budhi Gandaki, Marsyangdi, Seti, Madi and Daraudi.

Valmikinagar Barrage

- Located near the India–Nepal border; supports irrigation and regulates Gandak waters.
- Heavy monsoon inflows from Nepal increase downstream flood risks.

6.19. TIGRESS RELEASED IN BUXA TIGER RESERVE

Context: Tigress T138, translocated from Valmiki Tiger Reserve, Bihar, was released into Buxa Tiger Reserve (BTR), West Bengal, at the start of Wildlife Week 2026.

Tiger Recovery Programme

- **Project:** Tiger Augmentation and Recovery Project, implemented since 2018 by the West Bengal Government, National Tiger Conservation Authority (NTCA) and Wildlife Institute of India (WII).

About Buxa Tiger Reserve

- **Location:** Alipurduar district, West Bengal, near the Bhutan and Assam borders.
- **Ecosystems:** Terai, Bhabar and sub-Himalayan forests.
- **Flora and Fauna:** Sal, Champ and Simul forests; tigers, elephants, gaurs, sambar, wild dogs and wild boars. Threatened species include Bengal florican and Chinese pangolin.
- **Rivers:** Sankosh, Raidak, Jayanti, Churnia, Turturi, Phashkhawa, Dima and Nonani.
- **Connectivity:** Links tiger habitats across Northeast India and the Brahmaputra Valley with Manas Tiger Reserve (Assam), Phipsoo Wildlife Sanctuary (Bhutan) and Jaldapara National Park (West Bengal).

6.20. NATIONAL COASTAL MISSION 2.0

Context: Implementation guidelines launched by the Union Environment Minister to strengthen coastal conservation and climate resilience.

Key Features

- **Type and Outlay:** Central Sector Scheme with ₹767 crore for 2025–26 to 2030–31; replaced the earlier National Coastal Mission from 16 May 2025.
- **Objective:** Protect coastal and marine ecosystems, support sustainable livelihoods and advance India's Blue Economy.
- **Focus Areas:** Climate adaptation, mangrove and coral reef conservation, brackish-water wetlands, pollution control, livelihoods and capacity building.
- **Planning:** Integrated Coastal Zone Management Plans (ICZMPs) and Coastal Marine Spatial Plans (CMSPs).
- **Five Components:** Climate-resilient Blue Economy growth; coastal vulnerability and risk reduction; climate adaptation with miti-

gation benefits; capacity building and outreach; committed liabilities and project management.

Coverage

- **Nine Coastal States:** Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal.
- **Four Union Territories:** Dadra and Nagar Haveli and Daman and Diu, Andaman and Nicobar Islands, Puducherry and Lakshadweep.

6.21. JAWAHAR DWEEP DECLARED INDIA'S FIRST PLASTIC-FREE OIL TERMINAL

Context: Mumbai Port Authority declared the Jawahar Dweep Marine Oil Terminal plastic-free during Swachhata Abhiyan 2026.

Key Highlights

- **Environmental Measures:** Reduces single-use plastic and improves waste management across port docks, residential colonies and coastal areas. Oil Spill Response (OSR) facilities were also dedicated.
- **Operations:** Handles crude oil and petroleum products.
- **Fifth Jetty (JD5):** Completed in December 2020; 470 metres long, accommodating vessels carrying up to 1.5 lakh tonnes.

6.22. SUPER EL NIÑO 2026-27: IMPLICATIONS FOR INDIA AND TAMIL NADU

Context: The World Meteorological Organisation (WMO) warned of a potentially strong El Niño in 2026-27, with Niño 3.4 sea surface temperature (SST) anomalies possibly reaching +3.7°C in October–December 2026.

El Niño and Super El Niño

- **El Niño:** Warm phase of the El Niño–Southern Oscillation (ENSO), occurring roughly every 2–7 years in the tropical Pacific.
- **Identification:** Niño 3.4 SSTs at least 0.5°C above normal for five consecutive overlapping three-month periods, measured by the Oceanic Niño Index (ONI).

- **Mechanism:** Weakened trade winds shift warm Pacific waters eastward, suppressing cold-water upwelling near Peru and Ecuador.
- **Super El Niño:** Informal term for exceptionally strong events, generally with Niño 3.4 anomalies of +2°C or more.

Implications for India

- **Southwest Monsoon:** El Niño generally weakens India's June–September monsoon, increasing drought risk.
- **Tamil Nadu:** Receives nearly 48–50% of annual rainfall during the October–December Northeast Monsoon and may experience heavier rainfall during El Niño.

Why Tamil Nadu May Receive Heavy Rainfall

- **Moisture Transport:** Pressure differences between the Bay of Bengal and Arabian Sea may channel moisture towards coastal Tamil Nadu.
- **Warmer Bay of Bengal:** Higher sea surface temperatures and evaporation can increase atmospheric moisture.
- **Cyclones and Depressions:** Warm waters may intensify rain-bearing systems, increasing risks of extreme rainfall, flooding and cyclones.
- **East India Coastal Current (EICC):** Seasonal current reversals influence coastal temperatures and the development of rain-bearing systems.

6.23. WILD BUFFALO REINTRODUCTION IN KANHA TIGER RESERVE

Context: Madhya Pradesh is reintroducing wild buffaloes after their disappearance from the state's forests for nearly a century.

- **Source:** Eight buffaloes translocated from Kaziranga National Park, Assam, over approximately 2,200 km.
- **Location:** Supkhar, selected based on historical evidence of wild buffalo presence.
- **Acclimatisation:** One-hectare quarantine enclosure, followed by a 17-hectare enclosure before release.
- **Target:** Establish a population of 50 within three years.

Wild Buffalo (*Bubalus arnee*)

- **Habitat:** Grasslands, swamps, marshes and river valleys.
- **Historical Range:** Central India, including present-day Chhattisgarh, Odisha, Maharashtra and parts of neighbouring states.
- **Distribution:** Primarily associated with Northeast India, especially Assam.
- **IUCN Status:** Endangered. **Legal Protection:** Schedule I, Wild Life (Protection) Act, 1972.

6.24. BLACKBUCK REINTRODUCTION IN GOMARDA WILDLIFE SANCTUARY

Context: Chhattisgarh plans to relocate 50 blackbucks from Barnawapara Wildlife Sanctuary to Gomarda, where they became locally extinct in the 1970s.

Barnawapara Wildlife Sanctuary

- **Location:** Chhattisgarh; source population for translocation.
- **Rivers:** Balamdehi (western boundary) and Jonk (northeastern side), both tributaries of the Mahanadi.
- **Wildlife:** Gaur, chital, sambar, nilgai and wild boar.

Gomarda Wildlife Sanctuary

- **Location:** Near Sarangarh, Chhattisgarh.
- **Habitat:** Dry deciduous forests, rolling hills, grasslands, reservoirs and waterfalls.

Blackbuck (*Antelope cervicapra*)

- **Habitat:** Open grasslands and plains of the Indian subcontinent.
- **Features:** Diurnal antelope; males have spiral horns and a dark upper body.
- **Diet:** Primarily a grazer.
- **Reproduction:** Gestation of approximately six months; breeding can occur year-round.
- **Threats:** Habitat loss, hunting, human disturbance and predation on fawns by free-ranging dogs and **jackals**.
- **Legal Protection:** Schedule I, Wild Life (Protection) Act, 1972.

6.25. SUKHNA WETLAND AND SAUJ JHEEL ADDED TO RAMSAR LIST

Context: Designation of Sukhna Wetland (Chandigarh) and Sauj Jheel (Uttar Pradesh) increased India's Ramsar Sites to 103, according to the provided information.

Sukhna Wetland, Chandigarh

- **Location:** Shivalik Hills, at the foothills of the Outer Himalayas; peri-urban reservoir.
- **Ecology:** Supports migratory waterbirds along the Central Asian Flyway and regulates water and sediment flows.
- **Important Species:** Common Pochard (Vulnerable), Pallas's Fish Eagle (Endangered) and Black Pond Turtle (Endangered).
- **Threats:** Sedimentation, soil erosion and invasive species.

Sauj Jheel, Uttar Pradesh

- **Location:** Shallow lake in the Ganga floodplain, near Saman Bird Sanctuary.
- **Ecology:** Supports over 30,000 waterbirds and provides feeding, nesting and breeding habitats.
- **Important Species:** Sarus Crane (Vulnerable), Greater Spotted Eagle (Vulnerable), Sacred Lotus and Wild Sugarcane.
- **Recognition:** Important Bird and Biodiversity Area (IBA), identified by BirdLife International.
- **Conservation:** Proposed seasonal fishing restrictions, limits on fine-mesh nets and regulated cattle access.

Ramsar Site Designation

- **Convention:** Ramsar Convention on Wetlands, adopted in 1971 at Ramsar, Iran.
- **Criteria:** A wetland must meet at least one of nine criteria, covering:
 - Rare or representative wetland types.
 - Threatened species and biodiversity.
 - Critical breeding, migration and life-cycle habitats.
 - At least 20,000 waterbirds or 1% of a waterbird species' population.

- Significant native fish diversity, spawning or nursery habitats.
- Important populations of other wetland-dependent animals.

6.26. IMD LAUNCHES INTERACTIVE CYCLONE WARNING AND MARINE WEATHER PLATFORM

Context: The India Meteorological Department (IMD) launched the Cyclone Warning and Marine Weather Services Decision Support System (DSS) to strengthen cyclone preparedness.

Key Features

- **Technology:** Web-based Geographic Information System (WebGIS) with interactive maps showing cyclone tracks, intensity, wind patterns, rainfall, storm surges and river-catchment forecasts.
- **Objective:** Provides location-specific hazard information for timely warnings, evacuation planning and disaster management.
- **Accessibility:** Available through IMD, Regional Specialised Meteorological Centre (RSMC) websites and IMD's DSS.
- **Background:** Launch coincided with the anniversaries of Very Severe Cyclonic Storms Phailin (2013) and Hudhud (2014), highlighting advances in India's forecasting capabilities.
- **Coordination:** IMD's biannual Pre-Cyclone Exercise Meeting, conducted since 2008, involves disaster management authorities, defence forces, coastal states, fisheries departments and scientific organisations.
- **Significance:** Improves early warnings, inter-agency coordination and disaster risk reduction.



SOCIAL ISSUES

1. RECOGNISING WOMEN FARMERS IN INDIA

Context: Maharashtra became the first Indian state to pass the Women Farmers Empowerment Bill, 2026, recognising women as farmers through a Woman Farmer Certificate, irrespective of land ownership. The legislation aligns with the United Nations' designation of 2026 as the International Year of the Woman Farmer.

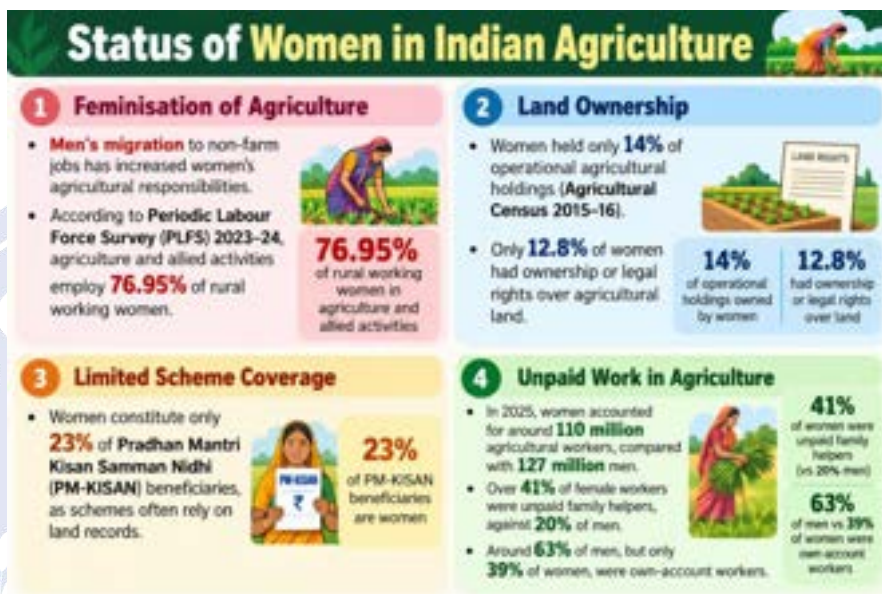
Key Drivers of Agricultural Feminisation

Economic Factors

- **Male Migration:** Agrarian distress and low farm incomes push men towards urban employment, leaving women to manage farms. During COVID-19, reverse migration often restored men's control over land and farm decisions, marginalising women.
- **Wage Differences:** Women are often paid 20–30% less than men. Rising input costs also encourage households to replace hired labour with unpaid female family workers.
- **Limited Non-Farm Jobs:** Weak rural industrialisation and inadequate education and vocational training restrict women's employment alternatives.

Social and Cultural Factors

- **Care Responsibilities:** Childcare, eldercare and livestock management limit women's mobility.
- **Social Acceptance:** Weeding, transplanting and harvesting are often viewed as extensions of domestic work, making farm labour more socially acceptable for women.
- **Migration Restrictions:** Safety concerns and caste or community restrictions limit independent migration.
- **Weak Property Rights:** Male-dominated inheritance practices restrict women's access to land, assets, collateral and agricultural entrepreneurship.



Importance of Recognising Women Farmers

- **Food Security:** The Food and Agriculture Organization (FAO) estimates that equal access to productive resources could raise women farmers' yields by 20–30%, potentially reducing global hunger for 100–150 million people.
- **Household Welfare:** Greater control over farm income can improve spending on nutrition, healthcare and education.
- **Climate Resilience:** Women's traditional knowledge of seed conservation, biodiversity and soil management supports sustainable, climate-resilient agriculture.

Major Challenges

- **Work–Ownership Gap:** Women cultivate land without legal ownership, making them invisible in official farmer records.
- **Limited Credit:** Lack of land collateral restricts access to bank loans, Kisan Credit Cards (KCCs) and affordable institutional credit.
- **Welfare Exclusion:** Land-linked eligibility limits access to subsidised inputs, crop insurance under the Pradhan Mantri Fasal Bima Yojana (PMFBY) and agricultural extension services.
- **Gender-Biased Machinery:** Equipment designed largely around male body dimensions increases women's physical burden.
- **Restricted Markets:** Social barriers, inadequate transport and male-dominated Agricultural Produce Market Committee (APMC) mandis limit women's bargaining power and increase dependence on intermediaries.



Way Forward

- **Separate Farmer Status from Land Ownership:** Recognise actual cultivation through Woman Farmer Certificates issued by local Gram Sabhas, including to landless cultivators and sharecroppers.
- **Integrate Digital Records:** Establish a common definition of women farmers across states, linked to Agri Stack, Farmer IDs and direct benefit transfers.
- **Expand Credit:** Financial institutions and the National Bank for Agriculture and Rural Development (NABARD) should accept activity-based certificates for collateral-free agricultural loans and KCCs.
- **Strengthen Local Governance:** Gram Panchayats should facilitate certification, awareness and inclusion of women's needs in Gram Panchayat Development Plans (GPDs).
- **Ensure Gender-Responsive Spending:** Conduct annual audits to verify that the mandated 30% agricultural allocation reaches certified women farmers.

Conclusion: Activity-based recognition, digital inclusion and equitable access to finance can strengthen food security, climate resilience and inclusive rural growth.

Test Your Knowledge	
Prelims Corner <p>With reference to women farmers in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. Recognition of a farmer in India is generally linked to ownership or legal rights over agricultural land. 2. The Women Farmers Empowerment Bill, 2026 of Maharashtra seeks to recognise women as farmers irrespective of land ownership. 3. The Mahila Kisan Sashaktikaran Pariyojana is a component of the DAY-NRLM. <p>Which of the statements given above are correct?</p> <p>A. 1 and 2 only B. 2 and 3 only C. 1 and 3 only D. 1, 2 and 3</p> <p>Answer: D. 1, 2 and 3</p>	Mains Corner <p>Q. "The feminisation of Indian agriculture has not been accompanied by a corresponding increase in women's ownership, income or formal recognition as farmers." Discuss the structural factors behind this disconnect and examine how activity-based recognition of women farmers can promote inclusive and resilient agricultural development. (15 marks, 250 words)</p>

2. SWACHH BHARAT MISSION–GRAMEEN (SBM-G)

Context: SBM-G has evolved from toilet construction into a community-driven sanitation mission focused on behavioural change, waste management and sustainable sanitation.

GOBARDhan Initiative

- **GOBARDhan (Galvanising Organic Bio-Agro Resources Dhan)** is an **umbrella initiative** under **SBM-G Phase II**.
- Converts cattle dung, agricultural residue and organic waste into **biogas, Compressed Bio-Gas (CBG) and organic manure or bio-slurry**.

Significance of SBM-G

- **Behavioural Change:** Promotes toilet use, handwashing, safe water storage, waste segregation, composting and responsible waste disposal.
- **Women's Leadership:** Swachhagrahis and Self-Help Groups (SHGs) mobilise communities, promote toilet use and support waste management.
- **School-Based Sanitation:** Schools develop hygiene habits, waste-management practices and environmental responsibility among children, extending these practices to families.
- **Local Governance:** Gram Panchayats and Village Water and Sanitation Committees (VWSCs) support village-level planning, IEC activities, waste management and community mobilisation.
- **Jan Bhagidari:** Initiatives such as Swachhata Hi Seva (SHS) engage citizens, SHGs, youth, schools and local institutions in public cleanliness.
- **Rural Livelihoods:** Waste collection, recycling, composting, sanitation infrastructure and maintenance create employment, including opportunities for women-led enterprises.
- **Waste-to-Wealth:** GOBARDhan converts organic waste into useful energy and manure, supporting a circular economy and rural incomes.
- **Resource Recovery:** Greywater treatment and reuse support water conservation, groundwater re-charge, irrigation and environmental sustainability.

Key Challenges

- **Sustaining ODF and Hygiene:** Preventing a return to open defecation and ensuring continued toilet use, handwashing and safe-water practices.
- **Solid and Plastic Waste:** Inadequate collection, segregation, recycling and scientific disposal.
- **Liquid Waste Management:** Poor greywater and wastewater management causes stagnant water and environmental contamination.
- **Weak Local Capacity:** Gram Panchayats often lack adequate technical, financial and managerial capacity for sanitation planning and maintenance.
- **Limited Livelihoods:** Insufficient employment opportunities and underutilisation of waste as a resource.
- **Limited Community Ownership:** Dependence on government-led infrastructure rather than sustained community participation.



Way Forward

- **Sustained Behavioural Change:** Strengthen Behaviour Change Communication (BCC) through Swachhagrahis, Self-Help Groups (SHGs), schools and community participation.
- **Decentralised Waste Management:** Strengthen village-level waste collection, segregation, recycling, composting and scientific disposal.
- **Improved Greywater Management:** Promote drainage, treatment, reuse, water conservation and groundwater recharge through locally suitable solutions.
- **Empower Local Institutions:** Build Gram Panchayats' technical, financial and managerial capacity and integrate sanitation into village development plans.
- **Sanitation-Based Circular Economy:** Expand GOBARDhan, recycling, composting and waste-to-energy models, alongside women-led enterprises and SHGs.
- **Deepen Jan Bhagidari:** Engage citizens, SHGs, youth, schools and local institutions through initiatives such as Swachhata Hi Seva.

Conclusion: The next phase of SBM-G must strengthen community ownership, circular resource use and local governance to achieve sustainable sanitation, healthier communities and cleaner, greener villages.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>With reference to Swachh Bharat Mission–Grameen (SBM-G) Phase II, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Aspiring category under ODF Plus requires sustained ODF status along with either solid or liquid waste management. 2. The Rising category requires both solid and liquid waste management. 3. The Model category additionally requires visual cleanliness and ODF Plus Information, Education and Communication (IEC) messages. 4. GOBARdhan promotes conversion of organic waste into biogas, Compressed Bio-Gas (CBG) and organic manure. <p>Which of the statements given above are correct?</p> <p>A. 1 and 2 only B. 1, 2 and 3 only C. 2, 3 and 4 only D. 1, 2, 3 and 4</p> <p>Answer: D. 1, 2, 3 and 4</p>	<p>Q. Rising household indebtedness alongside declining net financial savings can create vulnerabilities for both household welfare and macroeconomic stability. Discuss the causes, implications and policy measures needed to address this trend in India.</p> <p>(15 marks, 250 words)</p>

3. INDIA'S PHARMACEUTICAL PRICE REGULATION

Context: The Supreme Court of India questioned excessive gaps between wholesale prices and Maximum Retail Price (MRP) of life-saving medicines, including a 10-fold markup on a cancer drug, and suggested uniform retailer margins for essential medicines and medical devices.

Major Concerns

- **Excessive Trade Margins:** Non-scheduled drugs constitute around 80% of the market and have uncapped launch prices. Trade margins can exceed 500–1,000%, encouraging brand-based promotion.
- **Information Asymmetry:** Limited patient knowledge of pharmacology and generic alternatives, coupled with hospital pharmacies, creates captive buyers paying printed MRPs.
- **High Out-of-Pocket Expenditure (OOPE):** National Health Accounts (NHA) 2022–23 estimates show OOPE at 43.4% of Total Health Expenditure (THE). National Sample Survey Office (NSSO) 75th Round data indicates medicines account for around 70% of out-of-pocket healthcare spending.

Drug Price Regulation in India

To ensure availability, affordability and quality of medicines

<div style="background-color: #FFD700; padding: 5px; margin-bottom: 10px; text-align: center;"> 1 Key Legal and Institutional Framework </div> <div style="background-color: #FFD700; padding: 10px; margin-bottom: 10px;"> <p>Essential Commodities Act (ECA), 1955</p> <ul style="list-style-type: none"> Empowers the government to regulate medicine production, supply and prices. </div> <div style="background-color: #FFD700; padding: 10px; margin-bottom: 10px;"> <p>Drugs (Prices Control) Order (DPCO), 2013</p> <ul style="list-style-type: none"> Principal framework for drug-price control under the ECA. </div> <div style="background-color: #FFD700; padding: 10px;"> <p>National Pharmaceutical Pricing Authority (NPPA)</p> <ul style="list-style-type: none"> Under the Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers. Regulates prices, implements DPCO and recovers overcharges. </div>	<div style="background-color: #0070C0; color: white; padding: 5px; margin-bottom: 10px; text-align: center;"> 2 Scheduled Drugs </div> <div style="background-color: #0070C0; color: white; padding: 10px; margin-bottom: 10px;"> <ul style="list-style-type: none"> Medicines included in the National List of Essential Medicines (NLEM). NLEM 2022 contains 388 medicines and around 1,000 formulations. </div> <div style="background-color: #0070C0; color: white; padding: 10px; margin-bottom: 10px;"> <ul style="list-style-type: none"> NPPA fixes ceiling prices using the average Price to Retailer (PTR) of brands with at least 1% market share, adding a 16% notional retailer margin to determine the capped MRP. </div> <div style="background-color: #0070C0; color: white; padding: 10px;"> <ul style="list-style-type: none"> Ceiling prices are revised annually based on the Wholesale Price Index (WPI). </div>
<div style="background-color: #0070C0; color: white; padding: 5px; margin-bottom: 10px; text-align: center;"> 3 Non-Scheduled Drugs </div> <div style="background-color: #0070C0; color: white; padding: 10px; margin-bottom: 10px;"> <ul style="list-style-type: none"> Manufacturers determine initial launch prices, but annual MRP increases cannot exceed 10%. </div> <div style="background-color: #0070C0; color: white; padding: 10px;"> <ul style="list-style-type: none"> Uncapped launch prices permit high trade margins between PTR and MRP, incentivising distributors, chemists and hospitals to promote particular brands. </div>	<div style="background-color: #0070C0; color: white; padding: 5px; margin-bottom: 10px; text-align: center;"> 4 Drug Quality Regulation </div> <div style="background-color: #0070C0; color: white; padding: 10px; margin-bottom: 10px;"> <p>Drugs and Cosmetics Act, 1940</p> <ul style="list-style-type: none"> Governs drug and cosmetic import, manufacture, distribution and sale. </div> <div style="background-color: #0070C0; color: white; padding: 10px;"> <p>Central Drugs Standard Control Organisation (CDSCO)</p> <ul style="list-style-type: none"> Apex drug regulator under the Ministry of Health and Family Welfare. Oversees new-drug approvals, clinical trials and drug standards. </div>

- **Quality-Control Gaps:** Divided responsibilities between CDSCO and State Drug Regulatory Authorities (SDRAs) cause inconsistent enforcement. World Health Organization (WHO) concerns over cough syrups contaminated with diethylene glycol and ethylene glycol were linked to around 300 child deaths.
- **Limited NLEM Coverage:** NLEM covers only about 20% of pharmaceutical market turnover, leaving many critical and rare-disease medicines outside ceiling-price controls.
- **Right to Health:** Unrestricted initial pricing may undermine access to affordable medicines under Article 21, which protects the Right to Life.

Measures for Affordable and Quality Medicines

- **Trade-Margin Rationalisation:** NPPA has capped margins on critical medical products, reducing prices of 42 anti-cancer medicines, coronary stents, orthopaedic knee implants and oxygen concentrators.
- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP):** Supplies generic medicines through Jan Aushadhi Kendras, generally 50–80% cheaper than branded alternatives.
- **Free Medicines under National Health Mission (NHM):** The Free Drugs Service Initiative provides essential medicines at public facilities, from Primary Health Centres (PHCs) to district hospitals.
- **Pharma Sahi Daam App:** NPPA application enabling price checks, generic-alternative identification and complaints against overcharging.
- **Stronger Manufacturing Standards:** Revised Schedule M requirements mandate World Health Organization-aligned Good Manufacturing Practices (GMP) for pharmaceutical Micro, Small and Medium Enterprises (MSMEs).

Way Forward

- **Universal Trade-Margin Regulation:** Apply reasonable trade-margin limits across the pharmaceutical supply chain, beyond NLEM-listed medicines.
- **Active Pharmaceutical Ingredient (API) Self-Reliance:** Expand Bulk Drug Parks with affordable electricity, effluent-treatment subsidies and tax incentives to improve competitiveness against China.
- **Market Diversification:** Reduce dependence on United States and European Union markets and leverage Free Trade Agreements (FTAs) against arbitrary tariffs and export restrictions.
- **Generic Prescriptions:** Enforce National Medical Commission (NMC) guidelines requiring prescriptions using generic pharmacological names rather than brand names.
- **Unified Drug Regulation:** Integrate Central and State licensing powers to ensure consistent, stringent quality enforcement across manufacturing units.

Conclusion: A patient-centric pharmaceutical framework requires fair trade margins, stronger quality assurance and wider access to generic medicines, balancing affordability, industry innovation, regulatory accountability and the right to health.

Test Your Knowledge

Prelims Corner

With reference to pharmaceutical price regulation in India, consider the following statements:

1. The National Pharmaceutical Pricing Authority (NPPA) determines the ceiling price of scheduled medicines based on the average Price to Retailer (PTR) of qualifying brands, with a notional retailer margin.
2. Non-scheduled drugs are subject to a restriction on annual MRP increases, but their initial launch prices are not directly capped under the Drugs (Prices Control) Order, 2013.
3. The Central Drugs Standard Control Organisation (CDSCO) is responsible for regulating drug prices under the DPCO.

Which of the statements given above are correct?

A. 1 and 2 only
B. 1 and 3 only
C. 2 and 3 only
D. 1, 2 and 3

Answer: A. 1 and 2 only

Mains Corner

Q. Despite extensive price-control mechanisms, high trade margins, limited coverage of essential medicines and regulatory gaps continue to affect the affordability and quality of medicines in India. Examine the issues and suggest measures for ensuring accessible, affordable and safe pharmaceuticals. (15 marks, 250 words)

4. OVER-REGULATION OF HIGHER EDUCATIONAL INSTITUTIONS

Context: The Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025 proposes replacing India's fragmented higher education regulatory system with a unified framework, raising concerns over institutional autonomy and excessive regulation.

Concerns Over Excessive Regulation

- **Compliance Burden:** University Grants Commission (UGC), All India Council for Technical Education (AICTE) and National Council for Teacher Education (NCTE) requirements divert faculty time from teaching and research towards documentation and reporting.
- **Bureaucratic Complexity:** Overlapping regulations create administrative burdens. UGC Regulations, 2018 prescribe a 40-hour work week but only five hours of daily physical presence, encouraging rigid compliance.
- **Trust Deficit:** Excessive monitoring and fear of penalties promote risk aversion and discourage academic innovation.
- **Restricted Autonomy:** Institutes of National Importance (INIs), including Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), Indian Institute of Science (IISc) and Indian Institutes of Science Education and Research (IISERs), demonstrate the value of institutional freedom in curriculum design and resource allocation.

Key Provisions of the VBSA Bill, 2025

Towards a unified and simplified regulatory framework for higher education

<div style="background-color: #FFD700; padding: 5px; text-align: center; border-radius: 5px;"> 1 Unified Regulator </div> <ul style="list-style-type: none"> Proposes a statutory umbrella body with one Chairperson and up to 12 members. Will replace three existing regulators. In line with the National Education Policy (NEP), 2020. <div style="text-align: center;"> <p>Unified Higher Education Regulator</p> </div>	<div style="background-color: #FFD700; padding: 5px; text-align: center; border-radius: 5px;"> 2 Three Autonomous Councils </div> <table style="width: 100%; text-align: center;"> <tr> <td style="width: 33%;"> Regulatory Council <small>Governance, compliance and graded autonomy.</small> </td> <td style="width: 33%;"> Accreditation Council <small>Technology-driven, outcome-based accreditation.</small> </td> <td style="width: 33%;"> Standards Council <small>National learning outcomes, curriculum standards and credit-transfer frameworks.</small> </td> </tr> </table>	Regulatory Council <small>Governance, compliance and graded autonomy.</small>	Accreditation Council <small>Technology-driven, outcome-based accreditation.</small>	Standards Council <small>National learning outcomes, curriculum standards and credit-transfer frameworks.</small>	<div style="background-color: #FFD700; padding: 5px; text-align: center; border-radius: 5px;"> 3 Separate Funding </div> <ul style="list-style-type: none"> Unlike the UGC, VBSA will not disburse grants. Funding remains with the Ministry of Education. <div style="text-align: center;"> </div>
Regulatory Council <small>Governance, compliance and graded autonomy.</small>	Accreditation Council <small>Technology-driven, outcome-based accreditation.</small>	Standards Council <small>National learning outcomes, curriculum standards and credit-transfer frameworks.</small>			
<div style="background-color: #FFD700; padding: 5px; text-align: center; border-radius: 5px;"> 4 Exclusions </div> <p>Medical and legal education remain under their respective statutory professional councils.</p> <div style="text-align: center;"> </div>	<div style="background-color: #FFD700; padding: 5px; text-align: center; border-radius: 5px;"> 5 Penalties </div> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>PENALTY</p> </div> <div style="flex: 1; text-align: right;"> <p>Up to ₹2 crore for fraudulent institutions and unauthorised degree-awarding bodies.</p> </div> </div>				

Concerns Over the VBSA Bill, 2025

- **Centres of Excellence:** A common regulatory framework could weaken the autonomy of successful institutions such as IITs and IIMs.
- **Federalism:** Education falls under the Concurrent List (Article 246); States fear excessive centralisation could undermine State universities' autonomy.
- **Digital Divide:** Technology-intensive reporting may disadvantage resource-constrained rural and State-funded institutions.

Measures for Effective Regulation

- **Institutional Autonomy:** The Kothari Commission (1964–66) advocated academic and administrative autonomy. Explicit safeguards should protect INIs from unnecessary interference.
- **One Nation One Data (ONOD):** Implement the framework recommended by the Dr Radhakrishnan Committee (2024) through a unified digital platform, eliminating duplicate data submissions and overlapping inspections.
- **Outcome-Based Accreditation:** Align with international practices such as the Washington Accord and European quality-assurance frameworks. Prioritise critical thinking, employability and research impact over infrastructure and attendance.
- **Light but Tight Regulation:** Follow NEP 2020 by firmly addressing commercialisation and financial fraud while limiting interference in academic, pedagogical and recruitment decisions.
- **Cooperative Federalism:** Ensure adequate State representation and establish an independent appellate tribunal to prevent excessive centralisation and executive overreach.

Conclusion: Higher education requires autonomy with accountability. A lighter, outcome-based regulatory framework can reduce compliance burdens while promoting academic freedom, institutional excellence and global competitiveness.

Test Your Knowledge	
<p>Prelims Corner</p> <p>With reference to the Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Bill proposes a single apex body supported by separate councils for regulation, accreditation and standards. 2. The VBSA is proposed to retain the grant-disbursal powers currently exercised by the University Grants Commission. 3. Medical and legal education are excluded from the proposed regulatory framework. 4. Education being a subject in the Concurrent List has implications for Centre-State relations in higher education regulation. <p>Which of the statements given above are correct?</p> <p>A. 1, 3 and 4 only B. 1 and 2 only C. 2, 3 and 4 only D. 1, 2, 3 and 4</p> <p>Answer: A</p>	<p>Mains Corner</p> <p>Q. The proposed Viksit Bharat Shiksha Adhishthan (VBSA) Bill, 2025 seeks to streamline higher education regulation, but excessive centralisation may undermine institutional autonomy and cooperative federalism. Discuss.</p> <p>(15 marks, 250 words)</p>

5. WHO PANDEMIC AGREEMENT

Context: At the United Nations High-Level Meeting (UN HLM) in September 2026, India presented its position on the Political Declaration on Pandemic Prevention, Preparedness and Response (PPPR).

- Negotiations on the Pathogen Access and Benefit-Sharing (PABS) System remain unresolved, with India seeking to bridge the Global North–South divide.



What Is the WHO Pandemic Agreement?

- **Overview:** A legally binding international treaty negotiated under Article 19 of the World Health Organization (WHO) Constitution and adopted in May 2025. It has not yet entered into force.
- **Negotiations:** Conducted by the Intergovernmental Negotiating Body (INB), comprising WHO member states, to establish a common framework for pandemic surveillance, emergency response and resource allocation.
- **Significance:** The second binding instrument adopted under Article 19, after the WHO Framework Convention on Tobacco Control (FCTC), 2003.

Major Concerns

- **Limited Technology Transfer:** Technology transfer on “mutually agreed terms” may remain voluntary, limiting access to manufacturing technologies, patent waivers and flexibilities under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- **PABS Deadlock:** Developing countries fear biopiracy and unequal access to products developed using shared pathogen samples and genetic data. Disagreement persists over manufacturers’ real-time production commitments to the World Health Organization (WHO).
- **Unfunded One Health Obligations:** Veterinary surveillance, wildlife monitoring and laboratory infrastructure require substantial investment, without guaranteed international financing.
- **National Sovereignty:** Countries fear constraints on domestic health policies, border controls and medical regulations. The United States has opposed stronger WHO authority, citing national and commercial interests.
- **Industry Resistance:** Pharmaceutical companies argue that mandatory benefit-sharing and intellectual property waivers could weaken research and development (R&D) incentives and disrupt supply chains.

India's Position

- **National Sovereignty:** International cooperation must respect domestic laws, regulatory approvals and national policy autonomy.
- **Equitable Access:** Advocates affordable medicines, guaranteed access for developing countries and resilient global supply chains.
- **Digital Public Infrastructure (DPI):** Promotes CoWIN, eSanjeevani and the Ayushman Bharat Digital Mission (ABDM) as scalable tools for global health cooperation.
- **Supply-Chain Resilience:** Despite being the “Pharmacy of the World”, India depends on imports for certain Active Pharmaceutical Ingredients (APIs) and Key Starting Materials (KSMs), necessitating diversified supply chains.

India's Contributions to Pandemic Preparedness

- **Vaccine Maitri:** Supplied over 300 million COVID-19 vaccine doses to nearly 100 countries and United Nations missions and agencies, prioritising LMICs.
- **Pharmaceutical Exports:** Supplied essential therapeutics, generic medicines, testing kits and active ingredients to over 150 countries during global disruptions.
- **Vaccine Manufacturing:** The Serum Institute of India and Bharat Biotech supplied affordable vaccines through international mechanisms, including COVAX and Gavi.

How Can India Bridge Global Divides?

- **Build PABS Consensus:** Use its biological research capabilities and generic-drug manufacturing strength to balance manufacturers' commercial interests with guaranteed, affordable supplies for LMICs.
- **Strengthen South-South Cooperation:** Partner with Africa, the Association of Southeast Asian Nations (ASEAN) and Latin America on One Health surveillance, genomic sequencing through the Indian SARS-CoV-2 Genomics Consortium (INSACOG), and healthcare workforce training.
- **Share Digital Public Goods:** Offer open-source platforms such as CoWIN and the Ayushman Bharat Digital Mission architecture to developing countries; share relevant digital health tools, including Aarogya Setu.
- **Advance Multilateral Cooperation:** Expand the Global Initiative on Digital Health (GIDH), launched during India's 2023 Group of Twenty (G20) Presidency, to promote interoperable health-data systems. Advance cooperation through proposed initiatives such as the H20 Summit and the G7-G20 health partnership, and coordinate positions through the Partners for Multilateralism coalition.
- **Strengthen Domestic Manufacturing:** Improve biosafety and biological-material governance under the Biological Diversity Act and accelerate Production Linked Incentive (PLI) schemes for APIs, medical devices and advanced biopharmaceuticals.
- **Protect TRIPS Flexibilities:** Safeguard the Doha Declaration on TRIPS and Public Health, preserving countries' rights to issue compulsory licences during public health emergencies.

Conclusion: The WHO Pandemic Agreement can strengthen global health security through equitable benefit-sharing, technology transfer and sustainable financing. India can bridge North-South divisions through inclusive cooperation, affordable healthcare and resilient manufacturing while safeguarding national sovereignty.

Test Your Knowledge

Prelims Corner	Mains Corner
<p>Q. With reference to the WHO Pandemic Agreement, consider the following statements:</p> <ol style="list-style-type: none"> 1. It was adopted under Article 19 of the WHO Constitution. 2. The Pathogen Access and Benefit-Sharing (PABS) System seeks to link pathogen sharing with equitable access to benefits arising from their use. 3. The agreement has already entered into force following its adoption in May 2025. <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (a) 1 and 2 only</p>	<p>Q. Examine the significance of the WHO Pandemic Agreement in strengthening global health governance. What challenges hinder equitable implementation, and how can India bridge the Global North-South divide in pandemic preparedness and response?</p> <p>(250 words, 15 marks)</p>

6. TOWARDS A TB-FREE INDIA

Context: According to the **World Health Organization (WHO)** Global Tuberculosis Report 2025, India's tuberculosis (TB) incidence declined 21% between 2015 and 2024, against a global decline of 12%. However, India still accounts for 25% of global TB cases.

Tuberculosis (TB)

Early Detection • Complete Treatment • TB-Free India

Yes! We can End TB

<div style="background-color: #FFD700; border-radius: 10px; padding: 10px; margin-bottom: 10px;"> <h3 style="margin: 0;">1 Understanding Tuberculosis</h3> <div style="display: flex; align-items: flex-start;"> <div> <p>Cause</p> <ul style="list-style-type: none"> • Mycobacterium tuberculosis. • Primarily affects lungs (pulmonary TB), but may affect other organs (extrapulmonary TB). </div> </div> <div style="display: flex; align-items: flex-start;"> <div> <p>Transmission</p> <ul style="list-style-type: none"> • Airborne spread through coughing, sneezing, speaking or singing by infectious individuals, especially in poorly ventilated spaces. • Does not spread through handshakes, shared food or utensils. </div> </div> <div style="display: flex; align-items: flex-start;"> <div> <p>Latent TB</p> <ul style="list-style-type: none"> • Infection without symptoms or transmission. • May progress to active disease, particularly in children, people living with HIV and immunocompromised individuals. </div> </div> <div style="display: flex; align-items: flex-start;"> <div> <p>Risk Factors</p> <ul style="list-style-type: none"> • Malnutrition, diabetes and weakened immunity. </div> </div> <div style="display: flex; align-items: flex-start;"> <div> <p>Symptoms</p> <ul style="list-style-type: none"> • Persistent cough, chest pain, fever, night sweats, fatigue, weight loss and sometimes coughing blood. </div> </div> <div style="display: flex; align-items: flex-start;"> <div> <p>Treatment and Prevention</p> <ul style="list-style-type: none"> • Curable with appropriate antibiotics. • BCG vaccine protects children against severe TB. • NTEP provides free diagnosis and treatment through public facilities and participating private providers. </div> </div> </div> <td style="width: 50%; vertical-align: top; padding: 10px;"> <div style="background-color: #0070C0; color: white; border-radius: 10px; padding: 10px; margin-bottom: 10px;"> <h3 style="margin: 0;">2 Government Initiatives</h3> </div> <div style="background-color: #FFD700; border-radius: 10px; 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Technological and Treatment Measures

- **BPaLM Regimen:** Combines Bedaquiline, Pretomanid, Linezolid and Moxifloxacin; provides an eligible six-month treatment option for multidrug-resistant or rifampicin-resistant TB (MDR/RR-TB).
- **TB Preventive Treatment:** Preventive medicines for eligible household contacts, people living with HIV and other vulnerable groups.
- **Digital Platforms:** Ni-kshay supports case management, patient monitoring and nutritional DBT. The TB Mukht Bharat App and AI-powered Khushi Chatbot support awareness, monitoring and locating diagnostic centres.
- **Cough Against TB (CATB):** Uses artificial intelligence to analyse three-second cough recordings. Over 1.62 lakh people screened, with a reported 12–16% additional case yield over conventional methods.
- **Adverse Outcome Prediction:** Identifies patients at risk of treatment failure; nationwide deployment reportedly reduced adverse treatment outcomes by 27%.
- **DeepCXR:** Analyses chest X-rays for TB-related abnormalities. Deployed in eight States and Union Territories and provided free to the government.

Present Challenges in Combating TB in India

- **Persistent burden:** India accounted for 25% of global TB cases in 2024, despite a 21% incidence decline since 2015.
- **Undernutrition and poverty:** Food insecurity, overcrowding and lost wages weaken immunity and treatment adherence, perpetuating the TB–poverty cycle.
- **Drug resistance:** MDR/RR-TB requires costly diagnostics, specialised regimens and adverse-effect monitoring.
- **Diagnostic gaps:** Asymptomatic and extrapulmonary TB, limited molecular testing and private-sector under-reporting delay diagnosis and weaken surveillance.
- **Stigma and treatment interruption:** Discrimination, migration, prolonged treatment and adverse effects increase loss to follow-up and transmission.

Way Forward

- **Expand molecular diagnostics:** Address the 186-laboratory drug-susceptibility testing shortfall through decentralised CBNAAT and Truenat networks.
- **Scale preventive treatment:** Provide TB preventive treatment to eligible household contacts and vulnerable groups to prevent disease progression.
- **Differentiate care:** Implement the March 2025 National Guidance on Differentiated TB Care, prioritising high-risk patients for nutrition, comorbidity management and monitoring.
- **Improve drug-resistant TB care:** Scale up the six-month BPaLM regimen, drug-susceptibility testing and adverse-effect monitoring under 2025 guidelines.
- **Engage private providers:** Strengthen public–private partnerships, mandatory Ni-kshay notification, free quality-assured medicines and adherence support.

Conclusion: India's progress towards TB elimination highlights the importance of early diagnosis, artificial intelligence-enabled screening, nutritional assistance and community mobilisation. Sustained investment and equitable access to quality healthcare remain essential for a TB-free India.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Question: With reference to India's initiatives for tuberculosis (TB) elimination, consider the following statements:</p> <ol style="list-style-type: none"> 1. The National Tuberculosis Elimination Programme (NTEP) follows the four pillars of Detect, Treat, Prevent and Build. 2. The BPaLM regimen provides a six-month treatment option for eligible multidrug-resistant or rifampicin-resistant TB patients. 3. The JOSH initiative comprises only healthcare professionals to promote TB awareness and treatment adherence. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (a) 1 and 2 only</p>	<p>Q. Despite significant progress in TB detection, treatment coverage and technological interventions, tuberculosis remains a major public health challenge in India. Examine the role of AI-enabled diagnostics, nutritional support and community participation in achieving TB elimination. (15 marks, 250 words)</p>

7. KHADI AND VILLAGE INDUSTRIES COMMISSION (KVIC)

Context: Khadi Mahotsav is held annually from 2–31 October, it promotes Khadi, local products, Vocal for Local and Atmanirbhar Bharat, particularly among youth.

Key Facts About KVIC

- **Statutory Status:** Established under the Khadi and Village Industries Commission Act, 1956, KVIC is a statutory body under the Ministry of MSME.
- **Objective:** Promote rural industrialisation, employment and village industries through financial, technical, skill-development and marketing support.

Major Market-Promotion Initiatives

- **International Market Access:** Facilitates participation in international exhibitions and trade fairs to connect rural enterprises with overseas buyers.
- **Online Retail:** Khadi India's online store offers clothing, fabrics, groceries, beauty products, essential oils, perfumes and incense sticks.
- **Retail Network:** 8 departmental Khadi India outlets, 15 KVIC branches and 8,035 outlets operated by Khadi institutions.
- **Global Outreach:** Khadi featured at New Zealand Fashion Week 2026 and Lakmé Fashion Week 2025, combining traditional craftsmanship with contemporary designs.

Major Achievements

- **Production and Sales:** In Financial Year (FY) 2025–26, Khadi and Village Industries sales reached a record ₹1.87 lakh crore. Production increased by 380% to ₹1,25,296 crore compared with 2013–14.
- **Employment:** Sectoral employment rose by 56% to 2.04 crore people between 2013–14 and 2025–26.
- **Training Infrastructure:** KVIC operates 35 training centres offering courses in food processing, bakery, beekeeping, incense-stick and candle making, and motor repair.
- **Skill Development:** Trained 79,682 people in FY 2025–26, including 47,382 women (approximately 59%).

- **Women's Empowerment:** Women constitute over 80% of approximately five lakh Khadi artisans, making the sector a major source of women's livelihoods.

Major Schemes Associated with KVIC

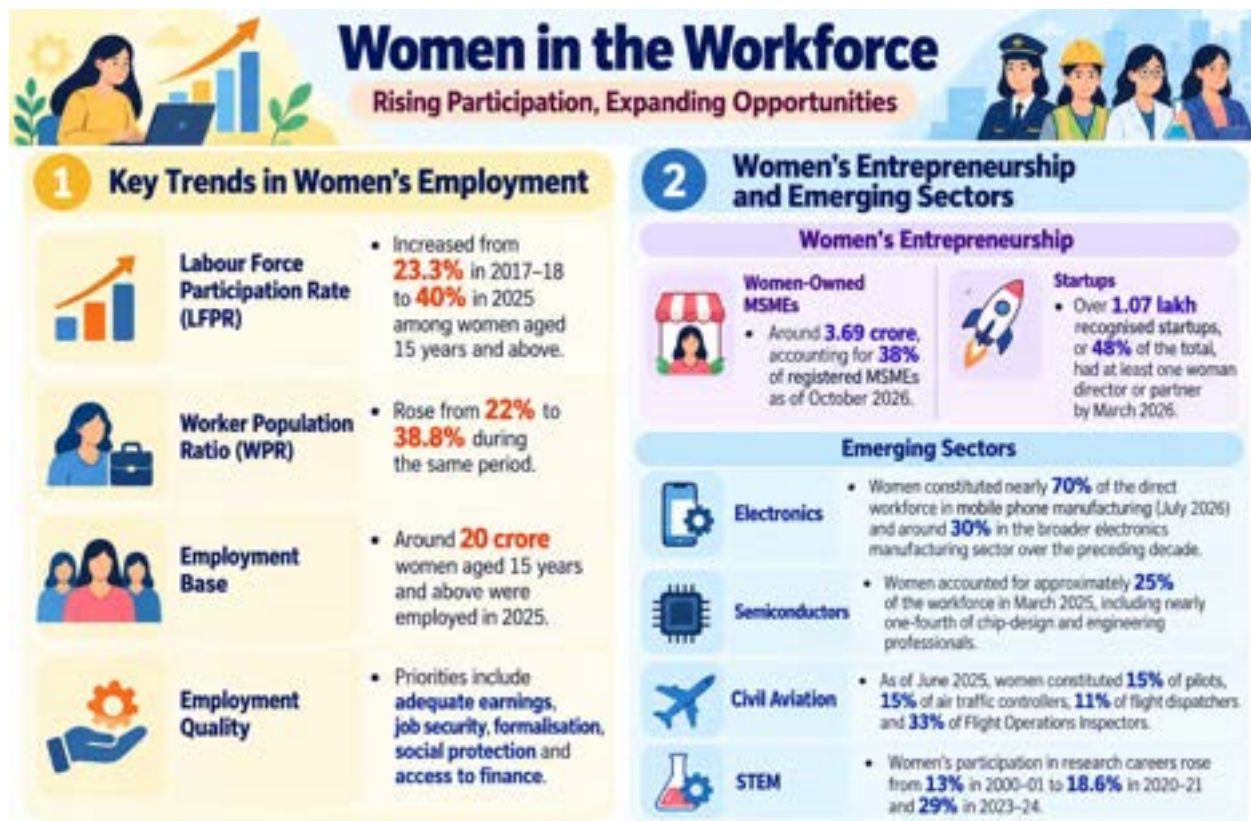
- **Prime Minister's Employment Generation Programme (PMEGP):** Launched in March 2008, supports micro-enterprises and self-employment. Through KVIC, it has generated employment opportunities for nearly 97.95 lakh people.
- **Gramodyog Vikas Yojana (GVY):** Provides modern machinery, toolkits and equipment to improve artisan productivity and product quality. During FY 2025–26, 37,769 items were distributed; cumulative distribution exceeded 3.23 lakh by May 2026.
- **Khadi Vikas Yojana:** Supports product improvement, value addition and marketing. Its Modified Market Development Assistance (MMDA) component enables flexible value addition and market-oriented pricing. In FY 2024–25, ₹245 crore was disbursed to 1,097 Khadi institutions, benefiting 1,45,484 artisans.
- **Interest Subsidy Eligibility Certificate Scheme:** Enables eligible Khadi institutions to access credit at a concessional 4% annual interest rate.
- **Workshed Scheme:** Provides improved production spaces and worksheds, enhancing artisans' working conditions and productivity.

8. ADVANCING WOMEN'S EMPLOYMENT AND ECONOMIC EMPOWERMENT IN INDIA

Context: Rising female labour force participation has shifted policy focus towards decent jobs, social security, workplace safety, financial independence and economic decision-making.

Government Initiatives

- **Formalisation of Women-Led Enterprises – Yashasvini Campaign (2024):** Promotes women's entrepreneurship through Udyam Registration and the Udyam Assist Platform; aims to achieve gender parity in entrepreneurship by 2029.
- **Credit and Financial Support – Women-Led Micro, Small and Medium Enterprises (MSMEs):** Pradhan Mantri MUDRA Yojana (PMMY), 2015: Provides collateral-free loans up to ₹20 lakh to eligible micro-enterprises; women account for nearly two-thirds of loans sanctioned under the scheme.
- **Credit and Financial Support – Women-Led Startups: Startup India Seed Fund Scheme (SISFS), 2021:** Supports proof of concept, prototype development, product trials and market entry; funding is channelled through approved incubators.
- **Market Access for Women Entrepreneurs – Womaniya Initiative:** Connects women-owned Micro and Small Enterprises (MSEs) and Self-Help Groups (SHGs) with government buyers through the Government e-Marketplace (GeM); facilitates public procurement and expands market access. Skill Development for Emerging Sectors – Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 4.0: Provides skill training in emerging sectors such as Artificial Intelligence (AI), semiconductors and renewable energy; promotes women's employability in technology-driven industries.



Labour Reforms for Safer Employment: In November 2025, the government implemented four Labour Codes, consolidating 29 existing labour laws. Key Provisions for Women Workers

- **Code on Wages, 2019:** Prohibits gender discrimination in recruitment, wages and employment conditions for the same or similar work.
- **Maternity Benefits:** Eligible women receive up to 26 weeks of paid maternity leave; eligible adoptive and commissioning mothers receive 12 weeks. A ₹3,500 medical bonus applies where employers do not provide free prenatal and postnatal care.
- **Nursing Breaks:** Two breaks during working hours until the child reaches 15 months.
- **Crèche Facilities:** Establishments with at least 50 employees must provide crèches; women are entitled to four visits daily, including rest intervals.
- **Work from Home:** Permitted after maternity leave where work allows and both parties agree.
- **Night Shifts:** Women may work in all establishments and sectors, including night shifts, subject to consent and prescribed safety measures.
- **Grievance Redressal:** Provides for proportionate representation of women in Grievance Redressal Committees.
- **Policy Representation:** Women must constitute at least one-third of Central and State Advisory Boards advising on minimum wages and women's employment.

Factors Restricting Women's Labour Force Participation

- **Unpaid care burden:** Women perform nearly 75% of global unpaid care work, while India's Time Use Survey 2019 highlights substantial gender disparities.
- **Occupational segregation:** Women remain concentrated in agriculture, domestic work and informal services, with limited access to higher-paying manufacturing and technology jobs.
- **Safety and mobility constraints:** Unsafe public transport, workplace harassment and inadequate street lighting restrict women's commuting, night-shift employment and access to industrial jobs.

- **Wage gaps and job insecurity:** Gender pay disparities, informal contracts and limited social security reduce incentives for sustained employment and career progression.
- **Skills and workplace infrastructure:** Digital divides, occupational segregation and inadequate child-care facilities constrain women's entry into formal, technology-intensive and industrial employment.

Way Forward

- **Expand affordable childcare:** Scale up Palna under Mission Shakti beyond 3,130 operational Anganwadi-cum-Crèches reported in March 2026, prioritising industrial clusters.
- **Create women-friendly workplaces:** Enforce crèche provisions, POSH compliance and safe night-shift transport, alongside working women's hostels under the Union Budget 2024-25.
- **Promote labour-intensive employment:** Expand women's recruitment in textiles, food processing, electronics and tourism, supported by targeted incentives and industry-linked skill training. Bridge the skills-to-jobs gap: Link Pradhan Mantri Kaushal Vikas Yojana training with employer placements, apprenticeships and digital skills, particularly for rural women.
- **Recognise and redistribute unpaid care:** Use Time Use Survey 2024 evidence—83.1% of women performed domestic services—to expand care infrastructure and promote shared household responsibilities.

Conclusion: Sustained women's economic empowerment requires decent employment, financial inclusion, market access, future-ready skills and effective labour protections. Equal opportunities and safer workplaces can transform rising participation into lasting empowerment and inclusive growth.

Test Your Knowledge	
<p>Prelims Corner</p> <p>Question: With reference to women's employment and economic empowerment in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. The female Labour Force Participation Rate (LFPR) for women aged 15 years and above increased from 23.3% in 2017-18 to 40% in 2025. 2. Under the Credit Guarantee Scheme for Micro and Small Enterprises (CGTMSE), women-led MSEs are eligible for 90% guarantee coverage and a 10% concession on guarantee fees. 3. The Womaniya Initiative facilitates market access for women-owned enterprises through the Government e-Marketplace (GeM). <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (d) 1, 2 and 3</p>	<p>Mains Corner</p> <p>Q. Despite rising female labour force participation in India, significant challenges remain in ensuring quality employment and economic empowerment for women. Examine the role of government initiatives in addressing these challenges, with particular reference to entrepreneurship, skill development, access to finance and workplace safety. (15 marks, 250 words)</p>

9. KERALAM SENIOR CITIZENS BILL, 2026 AND THE NEED FOR ELDERLY CARE

Context: The Keralam government introduced the Keralam Senior Citizens (Care and Protection of Rights) Bill, 2026 to regulate elder-care centres, certify caregivers and recognise advance medical directives, including living wills.

Need for a Trained Geriatric Workforce in India

- **Demographic Transition:** Rising chronic diseases, dementia and disabilities increase demand for long-term, palliative and home-based care.

- **Women's Empowerment:** Formal caregiving can reduce women's unpaid care burden and improve Female Labour Force Participation (FLFP).
- **Demographic Dividend:** Professional caregiving generates skilled jobs and strengthens human capital for Viksit Bharat@2047.
- **Global Employment:** The World Health Organization (WHO) projects a shortage of 11 million health workers by 2030, creating overseas care-sector opportunities.
- **Purple Economy:** India's care-services market is projected to reach USD 72.31 billion by 2030.
- **Declining Family Support:** Nuclear families and migration increase the need for professional elderly care.

Major Challenges in Elderly Care

- **Limited Financial Protection:** Over 75% of elderly people have chronic conditions, but only 18% have health insurance.
- **Multimorbidity:** High disease burdens coexist with inadequate specialised palliative and psychogeriatric facilities.
- **Ageing and Poverty:** Over 40% of elderly Indians belong to the poorest wealth quintile, increasing healthcare vulnerability.
- **Weak Regulation:** The Maintenance and Welfare of Parents and Senior Citizens (MWPSA) Act, 2007, requires stronger complementary standards for commercial elder-care services.
- **Caregiver Shortages:** National Skills Qualifications Framework (NSQF)-aligned training for 1.5 lakh caregivers under Union Budget 2026-27 remains insufficient for growing demand.
- **Unpaid Care Burden:** Inadequate institutional care disproportionately burdens women and low-income families, restricting employment and deepening inequality.



Way Forward

- **National Caregiving Framework:** Establish a National Caregiver Council (NCC), as recommended by NITI Aayog, to standardise training, set skill standards and maintain a national registry of certified caregivers.
- **Standardised Training:** Introduce NSQF-aligned certification in mobility assistance, dementia and palliative care, alongside background checks and periodic refresher training.

- **Scale State Initiatives:**

- **Kerala:** K4Care under Kudumbashree trains certified geriatric care executives. Kerala also introduced a dedicated Elderly Budget in early 2026, supporting retirement homes, palliative-care networks and the Vayomithram doorstep medicine scheme.
- **Karnataka:** The Carer's Monthly Allowance Scheme and Self-Help Groups (SHGs) support care-givers.

- **Caregiver Social Security:** Ensure minimum wages, safe working conditions and social security under the Unorganised Workers' Social Security Act, 2008.
- **Support Family Caregivers:** Introduce caregiving leave, community respite-care centres and Recognition of Prior Learning (RPL) certification for experience-based skills.
- **Legal Framework for Living Wills:** Establish accessible, nationwide procedures for registering advance medical directives to protect individual choices and guide families during end-of-life care.

Conclusion: India's ageing transition requires a rights-based care economy, trained caregivers, affordable services and robust social security. Integrating professional care with family support can promote healthy ageing, dignified employment and inclusive growth.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Question: With reference to the Keralam Senior Citizens (Care and Protection of Rights) Bill, 2026, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Bill mandates caregiver training, police verification and refresher courses every three years. 2. The Bill provides for imprisonment of up to three years for cruelty against senior citizens and mandates reporting suspected abuse within 48 hours. 3. The Bill seeks to promote home-based elderly care while ensuring fair wages and social security for caregivers. <p>Which of the statements given above are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (d) 1, 2 and 3</p>	<p>"India's rapidly ageing population demands a shift from family-dependent elderly care to a structured, rights-based and professionally supported care ecosystem." Discuss the challenges in elderly care in India and examine how a trained caregiving workforce can promote social security, women's economic empowerment and employment generation. (15 marks, 250 words)</p>

10. POINTERS FOR PRELIMS ESTD. 2026

10.1. RETENTION OF ST STATUS AFTER RELIGIOUS CONVERSION

Context: Allahabad High Court held that conversion does not automatically terminate Scheduled Tribe (ST) status; continued tribal identity and community ties are crucial.

Legal Position

- **Chintad Anand v. State of Andhra Pradesh (2026):** Conversion alone does not automatically disqualify an ST person.
- **SC vs ST:** Under the Constitution (Scheduled Castes) Order, 1950, SC status is restricted to Hindus, Sikhs and Buddhists.
- **Article 342:** Assess continuity of tribal roots, customs, rituals and community acceptance.

- **Caste certificate:** Not conclusive; complete, long-term assimilation into a non-tribal community may undermine an ST claim.
- **Tribal Land Protection (Uttar Pradesh):** Section 157-B, UP Zamindari Abolition and Land Reforms Act, 1950, and Section 99, UP Revenue Code, 2006: Restrict transfers of ST-owned agricultural land to non-ST persons.

Scheduled Tribes

- **Articles 366(25) and 342:** Define STs by reference to notified communities; the President specifies the list, and Parliament alone can amend it.
- **Population:** 8.6% of India (Census 2011).

- **Lokur Committee (1965):** Identification criteria included primitive traits, distinctive culture, geographical isolation, shyness of contact and socio-economic backwardness.
- **Constitutional safeguards:** Fifth Schedule (Scheduled Areas in states); Sixth Schedule (tribal areas in Assam, Meghalaya, Tripura and Mizoram).
- **NCST:** National Commission for Scheduled Tribes under Article 338A.
- **Forest Rights Act, 2006:** Recognises forest rights of STs and other traditional forest dwellers.
- **PVTGs:** 75 groups; characterised by pre-agricultural technology, geographical isolation and socio-economic vulnerability.

10.2. NATIONAL CONCLAVE ON TRIBAL RIGHTS

Context: The Ministry of Tribal Affairs organised a conclave on constitutional rights and legal provisions for tribal communities at the SCOPE Complex, New Delhi, to identify access barriers and develop practical, field-based recommendations.

Constitutional Safeguards

- **Articles 15(4) and 16(4):** Enable special provisions and reservation for Scheduled Tribes (STs) in education and public employment.
- **Article 46:** Directs the State to promote STs' educational and economic interests and protect them from injustice and exploitation.
- **Article 19(5):** Permits reasonable restrictions on certain rights to protect tribal interests.
- **Article 29:** Protects the distinct language, script and culture of communities.
- **Article 342:** Provides for specifying STs in particular States and Union Territories.
- **Article 338A:** Establishes the National Commission for Scheduled Tribes (NCST) to monitor safeguards and investigate complaints of rights violations.
- **Fifth Schedule:** Provides for Scheduled Areas' administration, Tribal Advisory Councils and safeguards for tribal land and governance.

10.3. RIS REPORT ON THE AYUSH SERVICES SECTOR AND WOMEN'S EMPLOYMENT

Context: The Ministry of Ayush released a study by the Research and Information System for Developing Countries (RIS) on 23 September 2026 during the 11th Ayurveda Day celebrations in Nagpur. It surveyed 15,914 establishments across six Ayush systems.

Key Findings

- **Market size:** US\$36.92 billion in Financial Year 2024-25, growing at a compound annual growth rate (CAGR) of 16.91% since Financial Year 2022-23.
- **Systems covered:** Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa-Rigpa and Homoeopathy.
- **Employment:** Supports 1.76 million livelihoods, with standalone clinics accounting for over one million.
- Women constitute 43% of the workforce, exceeding 50% in several organised segments.
- **Women's workforce share:** Spas and wellness resorts over 60%, educational institutions 58%, day-care centres 57% and hospitals 53%.

Revenue and Emerging Segments

- **Standalone clinics:** US\$16.21 billion, or 43.9% of sector revenue.
- **Day-care centres:** US\$10.13 billion. Together, both segments contribute over 70% of revenue.
- **Ayurveda:** US\$17.73 billion, accounting for approximately 48% of total revenue.
- **Wellness:** CAGR of 21.29%; Yoga centres recorded around 75% revenue growth over two years.

10.4. SOWA-RIGPA

Context: The Pharmacopoeia Commission for Indian Medicine and Homoeopathy (PCIM&H), under the Ministry of Ayush, held the first Sowa-Rigpa Working Group meeting on 18 September to standardise the **traditional medical system**.

About Sowa-Rigpa

- **Meaning:** "Knowledge of Healing" in Bhoti; also called the Amchi system and among the oldest medical traditions.

- **Distribution:** Ladakh, Himachal Pradesh, Jammu and Kashmir, Sikkim, Arunachal Pradesh and **Darjeeling**; also practised in China, Mongolia, Nepal, Russia and Bhutan.
- **Influence:** Shares similarities with Ayurveda; over 75% of its texts reportedly derive from Ashtanga Hridaya.
- **Medicines:** Uses Indian-origin herbs such as Ashwagandha, Guggulu, Triphala, Ashoka and Haridra.
- **Significance:** Developed across the Trans-Himalayan region and remains important to Himalayan communities.

About PCIM&H: A subordinate office of the Ministry of Ayush that develops pharmacopoeias and formularies and functions as the Central Drug Testing-cum-Appellate Laboratory for Indian systems of medicine and Homoeopathy

10.5. RISING ANTIFUNGAL RESISTANCE

Context: The United States Centers for Disease Control and Prevention (CDC) organised the 10th Annual Fungal Disease Awareness Week to highlight multidrug-resistant fungal infections, including *Candida auris*.

Fungi: Features and Significance

- **Characteristics:** Eukaryotic, heterotrophic organisms lacking chlorophyll; include yeasts, moulds and mushrooms.
- **Ecological and economic roles:** Decompose organic matter, recycle nutrients, support fermentation and produce antibiotics such as penicillin from *Penicillium*.
- **Mycoses:** Fungal diseases ranging from ringworm and nail infections to systemic infections, especially in immunocompromised individuals.

Candida auris

- **First reported in 2009;** a multidrug-resistant pathogen associated with hospital outbreaks, intensive care units and severe bloodstream infections.
- Reported **mortality** among affected patients is around 30 to 40%.
- **Climate link:** Global warming may favour heat-tolerant fungi capable of surviving the

human body temperature of approximately 37 degrees Celsius.

Mechanisms of Antifungal Resistance

- **Gene duplication:** Extra copies of the ERG11 gene reduce azole effectiveness.
- **Genetic mutations:** Mutations in the FKS1 gene can confer resistance to echinocandins such as caspofungin.
- **Eagle effect:** Very high drug concentrations may trigger compensatory chitin production, helping fungi survive treatment.

Antifungal Drugs and Targets

- **Azoles and polyenes:** Target ergosterol in the fungal cell membrane.
- **Echinocandins:** Inhibit fungal cell wall synthesis.
- **India:** Over 90% of reported Indian *C. auris* isolates are azole-resistant; around 30% show resistance to polyenes.

10.6. PLAGUE RISK EMERGES IN RUSSIA

Context: Russia reported that the plague situation was under control following reports of the suspected death of a laboratory worker in Siberia's Irkutsk region.

About Plague

- **Cause:** Zoonotic bacterial disease caused by *Yersinia pestis*, commonly found in small mammals and their fleas.
- **Transmission:** Infected flea bites, contact with infected tissues and respiratory particles from patients with pneumonic plague.
- **Forms:** Bubonic plague is the most common; pneumonic plague is the most dangerous and can spread between humans; septicemic plague affects the bloodstream.
- **Treatment:** Antibiotics are effective when administered early.
- **Global distribution:** Endemic in several countries, particularly Madagascar and the Democratic Republic of the Congo, which accounted for most reported human cases during 2019 to 2025.

10.7. WHO GUIDELINES ON CHILD AND ADOLESCENT OBESITY

Context: The World Health Organisation (WHO) issued its first clinical guidelines for managing obesity in children and adolescents.

Key Recommendations

- **Children aged 0 to 9 years:** Anti-obesity medicines and bariatric surgery are not recommended; prioritise family-based behavioural changes, nutrition and physical activity.
- **Adolescents aged 10 to 19 years:** Medicines may be considered under medical supervision if comprehensive lifestyle interventions are insufficient. Bariatric surgery may be considered for severe obesity under strict conditions.
- **Evidence gaps:** Limited long-term evidence exists on the safety, effectiveness, duration and dose reduction of medicines such as semaglutide in children.
- **Mental health:** Address anxiety, depression, low self-esteem, stigma and bullying through family-inclusive care.
- **Digital interventions:** WHO conditionally recommends exergames, pedometers, accelerometers and fitness applications to replace sedentary screen time with physical activity.

India's Regulatory Position

- **The Central Drugs Standard Control Organisation (CDSCO)** has approved semaglutide for adolescents aged 12 and above with morbid obesity and associated conditions, according to the provided report.
- **Surgical concerns:** Bariatric surgery may cause micronutrient malabsorption and impair physical growth.

10.8. JOSH TEAMS LAUNCHED FOR TUBERCULOSIS ELIMINATION

Context: The Ministry of Health and Family Welfare launched Joint Squad for Health (JOSH) Teams under the TB Mukh Bharat Abhiyaan to strengthen youth participation in tuberculosis (TB) elimination.

Key Features

- **Youth mobilisation:** Engages MY Bharat volunteers and National Cadet Corps (NCC) cadets in TB awareness, early diagnosis, treatment adherence and stigma reduction.
- **Community outreach:** Identifies symptomatic individuals, encourages testing, supports treatment completion and counters myths and discrimination.
- **Coverage:** First phase covers 55 districts across 11 States and Union Territories, with nationwide expansion planned.
- **Coordination:** Involves the Ministries of Health and Family Welfare, Youth Affairs and Sports, and Defence.
- **Target:** Accelerate TB elimination before 2030 through public participation and last-mile outreach.

10.9. INDIA'S FIRST HIGH-ALTITUDE HEALTH RESEARCH CENTRE

Context: The foundation stone of the Indian Council of Medical Research Centre for High Altitude Medicine and Public Health Research (ICMR-CHAMP) was laid at Keylong, Lahaul and Spiti district, Himachal Pradesh.

Key Features

- **Institution:** Builds on ICMR's existing Keylong field station to establish a permanent, year-round research centre with advanced laboratories.
- **Research focus:** Studies hypoxia, extreme cold, climate change and health challenges of Himalayan tribal communities.
- **Collaboration:** Involves ICMR, Armed Forces Medical Services (AFMS), All India Institute of Medical Sciences (AIIMS) Bilaspur and other institutions.
- **Military applications:** Develops acclimatisation protocols and improves early diagnosis and treatment for personnel deployed at high altitudes.
- **Public health:** Examines altitude-related illnesses, maternal and newborn health, child growth, nutrition and disease patterns.

- **Technology:** Explores drone-based medicine delivery, digital health and artificial intelligence for remote healthcare access.

10.10. ERVAVAC BECOMES INDIA'S FIRST WORLD HEALTH ORGANIZATION PREQUALIFIED INDIGENOUS HPV VACCINE

Context: Serum Institute of India's indigenous quadrivalent Human Papillomavirus (HPV) vaccine, **CERVAVAC**, received World Health Organisation (WHO) prequalification effective 25 September 2026, enabling procurement by United Nations agencies.

Vaccine Features

- **Development:** Developed by Serum Institute of India with support from the Department of Biotechnology (DBT), Biotechnology Industry Research Assistance Council (BIRAC), Gates Foundation and WHO's International Agency for Research on Cancer (IARC).
- **Coverage:** Targets HPV types 6, 11, 16 and 18. Types 16 and 18 cause cervical and other cancers; types 6 and 11 mainly cause genital warts.
- **Eligibility:** **Licensed** for girls and boys aged 9 to 26 years; two doses for ages 9 to 14 and three doses for ages 15 to 26.
- **Significance:** India's first indigenously developed gender-neutral quadrivalent HPV vaccine.

WHO Prequalification

- Confirms compliance with **international standards** of vaccine quality, safety and efficacy, including manufacturing assessment.
- Enables **procurement by United Nations agencies** but is not equivalent to national regulatory approval or marketing authorisation.

10.11. SMRITI MANDHANA NAMED UNICEF INDIA CELEBRITY ADVOCATE

Context: The United Nations Children's Fund (UNICEF) India appointed cricketer Smriti Mandhana as Celebrity Advocate on the International Day of the Girl Child, 11 October 2026, to promote

children's rights and equal opportunities, particularly for adolescent girls.

About Smriti Mandhana

- Recipient of the **Arjuna Award and two-time International Cricket Council (ICC) Women's Cricketer of the Year**.
- Member of **India's 2025 ICC Women's Cricket World Cup-winning team**.
- Previously supported UNICEF and ICC campaigns on gender equality, life skills and the Promise to Children campaign.

About UNICEF

- **Establishment:** Founded by the United Nations General Assembly (UNGA) on 11 December 1946 to assist children affected by the Second World War. Headquarters: New York City
- **Mandate:** Protects children's rights, meets basic needs and promotes opportunities for development.
- **Governance:** 36-member Executive Board elected by the United Nations Economic and Social Council (ECOSOC) for three-year terms.
- **Funding:** Voluntary contributions from governments, private organisations, civil society and individuals.

10.12. KAUMARACON 2026

Context: The Vice-President inaugurated the 3rd International Conference on Kaumarabhritya, organised by the All India Institute of Ayurveda (AIIA).

Key Highlights

- **Theme:** "Shaping the Future of Child Health: Global Perspectives, Research Innovations, and Clinical Frontiers in Kaumarabhritya."
- **Focus:** Integrating traditional knowledge with scientific research for evidence-based healthcare and global acceptance of Ayurveda.
- **Launches:** AYUSH Start-up Portal, AIIA-iCAINE website, Ayurveda Digital Innovation and Venture Acceleration Facility (AyuDIVA), Vamana App and Panchakarma Assessment App.
- **Panchakarma:** Ayurvedic treatment involving five actions, traditionally aimed at eliminating

toxins (Ama) and balancing Vata, Pitta and Kapha.

About Kaumarabhritya

- An Ayurvedic branch concerned with child health, nutrition, growth, development and disease prevention.
- **Kaumara:** Refers to childhood, traditionally up to 16 years.
- **Bhritya:** Refers to nourishment, upbringing, maintenance and protection.

10.13. SUPREME COURT ON RELIGIOUS CONVERSION AND RESERVATION

Context: In Secretary to Government v. Sameer Ahamed N. (2026), the Supreme Court upheld the Madras High Court's decision striking down a 2024 Tamil Nadu Government Order allowing converts from Hinduism to Islam to claim Backward Class (Muslim) reservation automatically.

Key Rulings

- **Reservation eligibility:** Under Article 16(4), reservation depends on membership of a recognised backward class; previous caste-based disadvantage does not automatically transfer after religious conversion.
- **Independent eligibility:** Muslims and Christians may qualify for Other Backward Class (OBC) or Backward Class benefits if they meet applicable criteria.
- **Scheduled Caste status:** Under the Constitution (Scheduled Castes) Order, 1950, Paragraph 3, Scheduled Caste (SC) status is restricted to persons professing Hinduism, Sikhism or Buddhism.
- **Religious certificates:** Private religious bodies cannot conclusively determine statutory eligibility for caste-based reservation.
- **Reconversion:** Restoration of SC status requires genuine reconversion, evidence of renewed caste identity and acceptance by the original community.
- **Executive orders:** Government orders cannot override constitutional provisions or legislation; they remain subject to judicial review.

Constitutional and Legal Framework

- **Article 341:** The President specifies Scheduled Castes; subsequent inclusion or exclusion requires parliamentary legislation.
- **State-specific status:** SC recognition is linked to the relevant State or Union Territory.
- **Atrocities Act:** Converts who lose SC status generally cannot claim protections specifically reserved for SCs under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989.
- **Continuing discrimination:** Legal loss of SC status does not necessarily eliminate caste-based social discrimination.

Important Judicial Pronouncements

- **C.M. Arumugam v. S. Rajgopal (1976):** Examined caste identity, community acceptance and continuing discrimination after reconversion.
- **Soosai v. Union of India (1985):** Upheld the exclusion of Christians from SC status, citing insufficient evidence presented in that case.
- **Chinthada Anand v. State of Andhra Pradesh (2026):** Reaffirmed the consequences of conversion to Christianity for SC status and related statutory protections.

Important Commissions

- **Kaka Kalelkar Commission (1955) and Mandal Commission (1980):** Examined backwardness among communities, including non-Hindu groups.
- **Justice Ranganath Misra Commission (2007):** Recommended making SC status religion-neutral.
- **Justice K. G. Balakrishnan Commission (2022):** Examines extending SC status to historically disadvantaged communities that converted to religions beyond Hinduism, Sikhism and Buddhism.

Scheduled Tribes versus Scheduled Castes

- **Religion:** The Constitution (Scheduled Tribes) Order, 1950, imposes no equivalent religious restriction on Scheduled Tribe (ST) status.
- **Continuity of identity:** Conversion does not automatically terminate ST status; tribal identity, customs and community acceptance remain relevant.

SCIENCE AND TECHNOLOGY

1. NUCLEAR POWER ON THE MOON

Context: The **National Aeronautics and Space Administration (NASA)** and the **United States Department of Energy (DOE)** plan to deploy a lunar **nuclear reactor by 2030** under the **Fission Surface Power (FSP) project**. China and Russia aim to establish an automated nuclear power plant by 2035 for their International Lunar Research Station (ILRS).

- Lunar nuclear deployment raises concerns over territorial control, resource ownership, environmental safety and international governance.

Fission Surface Power (FSP) Project

- Timeline:** A January 2026 Memorandum of Understanding (MoU) between NASA and DOE supports developing, fuelling and preparing a lunar fission reactor for launch by 2030 under the Artemis programme.
- Design:** Reactor weighing under 6,000 kg, using High-Assay Low-Enriched Uranium (HALEU).
- Applications:** Continuous baseload electricity for lunar habitats, life-support systems, rovers and ISRU equipment, supporting future crewed Mars missions.
- Earlier Reactor:** The United States launched SNAP-10A in April 1965, generating 500–600 watts in Earth orbit for 43 days before an electrical-system malfunction unrelated to the reactor.
- First Lunar Nuclear Electricity:** Apollo 12 used the plutonium-238-powered SNAP-27 Radioisotope Thermoelectric Generator (RTG) in 1969, designed to supply at least 63 watts to scientific instruments. Unlike fission reactors, RTGs convert radioactive-decay heat directly into electricity without a nuclear chain reaction.

Major Challenges in Deploying Nuclear Power on the Moon

Technical and Environmental Challenges		Governance and Regulatory Gaps	
1 Radiation Shielding Heavy shielding increases payload mass and launch costs .		1 Non-Binding UN Principles United Nations General Assembly Resolution 47/68 (1992) provides safety and notification guidelines for nuclear power sources in space but lacks enforcement mechanisms .	
2 Heat Management Moon's lack of atmosphere prevents convective cooling, requiring large radiator panels .		2 Limited Coverage Existing principles do not adequately cover advanced Nuclear Thermal Propulsion (NTP) and Nuclear Electric Propulsion (NEP).	
3 Power Distribution Remote reactors require robotic deployment , long-distance cables and reliable networks across difficult terrain.		3 Waste Disposal No comprehensive binding framework governs lunar reactor decommissioning , irradiated waste or abandoned orbital reactors .	
4 Autonomous Operation Reactors must withstand extreme temperatures and launch vibrations while operating reliably for years with minimal maintenance.		4 Liability Gaps The Liability Convention, 1972, provides limited clarity on nuclear accidents and radioactive contamination in cislunar space and on celestial surfaces.	
5 Safe Launch Reactors should be launched with unirradiated , or " cold ", fuel cores to minimise radioactive contamination in case of launch failure.		5 Freedom of Access Unilateral safety perimeters could restrict other countries' exploration, creating tension between operational safety and equitable access .	
6 Irreversible Contamination Reactor damage or cooling-system failure could release radioactive material into scientifically valuable craters containing water ice.			

Importance of Nuclear Power for Lunar Exploration

- **Surviving Lunar Nights:** A lunar day-night cycle lasts approximately 28 Earth days, including nearly 14 days of continuous darkness, making solar power and battery storage alone challenging.
- **Permanently Shadowed Regions (PSRs):** Lunar south-pole craters contain water ice but receive no direct sunlight, limiting solar-powered exploration.
- **Resource Extraction:** Mining ice, producing oxygen through electrolysis and liquefying hydrogen for propellants require substantial electricity. Producing 10 tonnes of oxygen is estimated to require 68 kilowatts of continuous power.
- **Limitations of RTGs:** Conventional RTGs produce only hundreds of watts, whereas human settlements may require tens to hundreds of kilowatts.

Geopolitical Implications

- **Competition for Lunar Sites:** South-pole locations combining accessible water ice, safe landing terrain and Earth communication links are limited.
- **Strategic Advantage:** Early deployment of reactors, power cables and infrastructure near valuable resources could provide lasting operational advantages.
- **Territorial Restrictions:** The Outer Space Treaty (OST), 1967, prohibits national sovereignty claims over celestial bodies, but infrastructure could create de facto control over surrounding areas.
- **Safety Zones:** The United States-led Artemis Accords permit temporary safety zones to prevent harmful interference. NASA studies have considered approximately 1 km separation between reactors and users, but this is not a universal requirement.
- **International Obligations:** Article IX of the OST requires due consideration of other states' interests and consultation to prevent harmful interference; it does not grant exclusive territorial rights to reactor operators.

India's Position

- **Indigenous Technology:** The Indian Space Research Organisation (ISRO) and Department of Atomic Energy (DAE) are collaborating on space nuclear-power technologies to strengthen strategic autonomy.
- **Future Missions:** ISRO is exploring 100-watt RTGs for long-duration missions, including the Bharatiya Antariksh Station and planned crewed lunar landing by 2040.
- **Chandrayaan-3:** Carried two 1-watt Radioisotope Heater Units (RHUs) on its propulsion module.
- **RHUs versus RTGs:** RHUs use radioactive-decay heat to prevent components from freezing; RTGs convert this heat into electricity.

Way Forward

- **Update the UN Framework:** UN-COPUOS should develop binding standards for high-output lunar reactors, advanced propulsion and radioactive-waste disposal.
- **International Oversight:** Consider a multilateral body modelled on the International Atomic Energy Agency (IAEA) to certify reactor designs, monitor space-bound fissile materials and verify safety compliance.
- **Agreed Safety Zones:** Establish temporary, proportionate and non-exclusionary safety perimeters through multilateral consultation.
- **Strengthen ISRO-DAE Cooperation:** Increase investment in indigenous space-grade nuclear reactors to enhance deep-space capabilities and India's influence in international negotiations.

Conclusion: Lunar nuclear power can enable sustained human presence and deeper space exploration. Robust safety standards, equitable resource access and inclusive international governance are essential for peaceful and sustainable lunar development.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Q. With reference to nuclear power on the Moon, consider the following statements:</p> <ol style="list-style-type: none"> 1. The Outer Space Treaty, 1967, permits countries to claim sovereignty over lunar areas where they establish scientific infrastructure. 2. Radioisotope Thermoelectric Generators (RTGs) generate electricity through the controlled nuclear fission process. 3. Article IX of the Outer Space Treaty requires states to give due consideration to the interests of other countries in their space activities. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 only (b) 3 only (c) 2 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (b) 3 only</p>	<p>Q. Discuss the significance of nuclear power for sustainable lunar exploration. What challenges does its deployment pose to international space governance, and how can India contribute to developing a rules-based framework? (250 words, 15 marks)</p>

2. ADDITIVE MANUFACTURING IN INDIA

Context: Additive Manufacturing (AM), or 3D printing, builds objects layer by layer from digital designs, unlike conventional material-removal manufacturing.

- It can boost indigenous production, reduce import dependence and advance Atmanirbhar Bharat and Viksit Bharat.

Applications in India

- Space and Aero-space**
 - Enables **light-weight, complex components** and faster indigenous production.
 - In May 2024, **Agnikul Cosmos**, incubated at the Indian Institute of Technology Madras, launched Agnibaan SORTeD with a single-piece, 3D-printed semi-cryogenic rocket engine.
- Defence**
 - Supports rapid **construction, maintenance** and repair.
 - The **Indian Army** built its first two-storey 3D-printed dwelling in Ahmedabad in 12 weeks; applications extend to defence structures in Ladakh.



- The **National Strategy for Additive Manufacturing (NSAM)** promotes workshop-level Maintenance, Repair and Overhaul (MRO) facilities for all three Services.
- **Healthcare**
 - Enables **indigenous medical devices, customised implants and** patient-specific bone grafts.
 - The Ministry of Electronics and Information Technology (MeitY) supports **medical-device manufacturing and start-ups**; the **Technology Development Board** supports 3D-printed bone grafts using indigenous bioceramics.
 - Bioprinting of tissues and organs is under research; transplant-ready functional organs **remain** a challenge.
- **Electronics**
 - NSAM has demonstrated **3D-printed batteries, antennas, varistors and capacitors**.
 - The Indian Institute of Science (IISc) has developed **3D-printed Photonic Integrated Circuit (PIC) blocks**.
- **Construction**
 - Enables faster, resource-efficient construction using low-carbon materials.
 - The Kelvin 6K Pro printer has demonstrated construction of 2,500-square-foot homes in under 30 days.
 - Initial applications indicate potential to reduce material and logistics costs by 30% and emissions by up to 90% compared with cement-based construction.

Government Initiatives

1. National Strategy for Additive Manufacturing (NSAM)

- **Launched:** MeitY, February 2022, to develop India's domestic AM ecosystem.
- **Targets:** Capture 5% of the global AM market; contribute nearly USD 1 billion to Gross Domestic Product (GDP); develop 50 India-specific technologies, 100 start-ups and 500 products; train one lakh people; build capabilities across 10 manufacturing sectors.

2. NSAM 2.0: Aims to expand commercial adoption and domestic capabilities through:

- Affordable machines and materials via clusters.
- Intellectual Property Rights (IPR), innovation and commercialisation.
- Digital connectivity and a stronger AM-electronics value chain.
- Start-ups, defence applications and sustainable pilot projects.
- International cooperation on standards, research and technology.

3. National Additive Manufacturing Symposium (NAMS)

- MeitY's second edition was held in New Delhi on 13 March 2026.
- Focused on NSAM 2.0, defence applications, research and development, product launches and partnerships among governments, industry and academia.

4. Emerging Science, Technology and Innovation Conclave (ESTIC) 2026

- Organised by the Council of Scientific and Industrial Research (CSIR).
- Scheduled for 27–29 October 2026 at Bharat Mandapam, New Delhi, under the theme “Creative Minds, Catalyzing Science, Empowering Technologies.”
- Covers 12 thematic areas, including AM, to promote innovation and strategic partnerships for Viksit Bharat 2047.

2.1. INDIA'S FIRST 3D-PRINTED RURAL HOUSING PILOT IN ANDHRA PRADESH

Context: India has launched its **first national-level pilot for rural houses using 3D Concrete Printing (3DCP) under the Pradhan Mantri Awas Yojana-Gramin (PMAY-G) in Andhra Pradesh.**

- The project plans to build 177 houses at an estimated cost of ₹14 crore, with completion expected within six months.

Benefits and Potential Applications

- **Faster and Cost-Effective Construction:** 3DCP can reduce construction time, material wastage and labour requirements.
- **Reduced Formwork Dependence:** It lowers the need for conventional formwork and enables faster, standardised and affordable housing construction.
- **Disaster Response:** The technology can be used to quickly build disaster-relief shelters.
- **Remote and Strategic Infrastructure:** It has potential for remote-area housing, defence fortifications and rapidly deployable public infrastructure.

Limitations of 3D-Printed Construction

- It cannot yet independently handle every component of a building.
- Foundations, structural reinforcement, roofing, electrical installations and plumbing still require conventional or hybrid construction methods.

Conclusion: Additive manufacturing can strengthen India's advanced manufacturing ecosystem, indigenous innovation and self-reliance. Affordable technology, skilled workers, commercialisation and industry-academia collaboration are crucial for sustainable growth.

Test Your Knowledge	
<p>Prelims Corner</p> <p>Question: With reference to Additive Manufacturing (AM) in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. Additive Manufacturing builds objects layer by layer from digital designs, unlike conventional subtractive manufacturing. 2. The National Strategy for Additive Manufacturing was launched by the Ministry of Electronics and Information Technology in 2022. 3. The strategy aims to develop 50 India-specific AM technologies and train one lakh skilled workers. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (d) 1, 2 and 3</p>	<p>Mains Corner</p> <p>Discuss the potential of Additive Manufacturing (3D printing) in strengthening India's indigenous manufacturing capabilities. Examine the key challenges and the role of government initiatives in promoting its adoption. (15 marks, 250 words)</p>

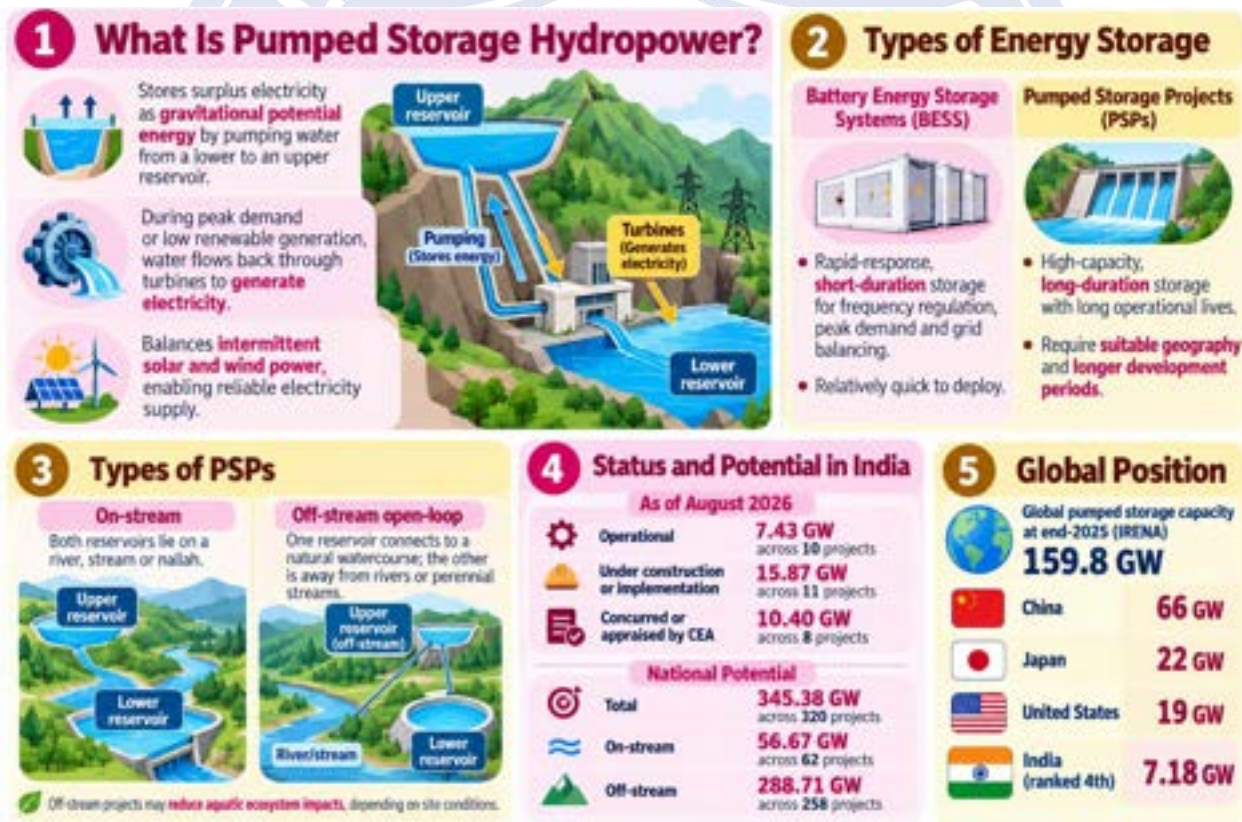
3. PUMPED STORAGE HYDROPOWER IN INDIA

Context: The Central Electricity Authority (CEA) has identified 345.38 gigawatts (GW) of potential across 320 Pumped Storage Projects (PSPs), with major expansion expected by 2035–36.

Government Initiatives

- **PSP Development Guidelines, 2023:** Issued by the Ministry of Power to accelerate project development.

- **Infrastructure support:** Budgetary assistance for roads, bridges, railway sidings, ropeways, communications and transmission lines.
- **Competitive procurement:** Tariff-Based Competitive Bidding (TBCB) Guidelines, 2025 establish a framework for procuring storage capacity and stored energy.
- **Transmission charge waiver:** PSPs awarded for construction by 30 June 2028 qualify for a 100% waiver of Inter-State Transmission System (ISTS) charges for 25 years from commercial operation.
- **Faster approvals:** Revised CEA guidelines reduced Detailed Project Report (DPR) concurrence timelines from 90 to 50 days and removed inter-state aspect clearance requirements.
- **Simplified environmental clearances:** The Ministry of Environment, Forest and Climate Change introduced Category B2 classification for eligible PSPs, reduced baseline data requirements for off-stream projects and revised forest-survey and borehole-exploration provisions.
- **Integrated grid planning:** Coordinates storage and transmission infrastructure to integrate renewables, reduce congestion and improve reliability.
- **Digital monitoring:** CEA's Jal Vidyut DPR portal enables real-time monitoring of surveys and investigations.
- **CEA concurrence exemption:** In August 2025, the capital expenditure threshold for concurrence in hydroelectric projects was revised to ₹3,000 crore. Off-stream closed-loop PSPs were exempted regardless of project cost.



Conclusion: PSPs can improve grid flexibility, energy security and reliable power supply alongside renewable energy. Sustainable planning and faster project execution are essential to India's clean energy transition.

Test Your Knowledge	
Prelims Corner	Mains Corner
<p>Question: With reference to Pumped Storage Hydropower (PSH) in India, consider the following statements:</p> <ol style="list-style-type: none"> 1. Pumped storage projects store surplus electricity by pumping water from a lower reservoir to an upper reservoir. 2. Unlike battery energy storage systems, pumped storage projects are primarily designed for short-duration energy storage. 3. Off-stream pumped storage projects can potentially reduce impacts on aquatic ecology, depending on site-specific conditions. <p>Which of the statements given above is/are correct?</p> <p>(a) 1 and 2 only (b) 1 and 3 only (c) 2 and 3 only (d) 1, 2 and 3</p> <p>Correct Answer: (b) 1 and 3 only</p>	<p>"Climate risk insurance is essential for strengthening India's disaster resilience, but affordability and unequal access remain major challenges." Examine the challenges in expanding climate risk insurance in India and suggest measures to ensure inclusive and effective disaster risk financing. (15 marks, 250 words)</p>

4. POINTERS FOR PRELIMS

4.1. CANAL-TOP PHOTOVOLTAICS (CTPV)

Context: Rising land costs have increased interest in Canal-Top Photovoltaics (CTPV) as a land-efficient renewable energy option.

Canal-Top Photovoltaics: Key Features

- **Concept:** Solar panels installed on elevated structures over irrigation or water-supply canals.
- **CTPV vs Floating Solar:** CTPV uses fixed structures over canals; floating solar uses floating platforms on reservoirs/lakes.
- **Advantages:**
 - Water conservation: Reduces canal evaporation.
 - Land saving: Uses existing canal infrastructure.
 - Higher efficiency: Water-assisted cooling may improve panel performance.
 - Reduced weed/algae growth: Shading may lower maintenance needs.

India's Potential and Progress

- **First project:** 1 MW plant at Mehsana, Gujarat (2012).
- **Estimated potential:** 131 GW for CTPV and canal-bank solar combined (CSTEP assessment, 2024).
- **High-potential states:** Uttar Pradesh, Bihar, Karnataka, Andhra Pradesh and Punjab.
- **Recent initiatives:** Punjab explored 40 MW of projects (2025); Haryana is assessing installations across six major canals.

4.2. 2026 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE: OPTOGENETICS

Context: The 2026 Nobel Prize in Physiology or Medicine was awarded jointly to Karl Deisseroth, Peter Hegemann and Georg Nagel for discoveries related to light-gated ion channels and optogenetics.

Optogenetics

- **Meaning:** Combines light and genetics to control specific nerve cells using light-sensitive proteins.
- **Principle:** Enables activation or inhibition of selected neural circuits with millisecond precision, overcoming limitations of electrodes and drugs.
- **Background:** Francis Crick proposed light-based control of neural activity in the 1970s.

Key Discoveries

- **Peter Hegemann and Georg Nagel:** Discovered channelrhodopsin, a light-sensitive algal protein that opens ion channels when exposed to blue light.
- **Karl Deisseroth:** Introduced the channelrhodopsin gene into mammalian neurons and used optical fibres to control neural activity in living mice.

Applications

- **Brain mapping:** Studies circuits associated with memory, emotions, movement and behaviour.
- **Neurological disorders:** Improves understanding of Parkinson's disease, Alzheimer's disease, epilepsy, depression and schizophrenia.
- **Neural interfaces:** May improve cochlear implants through targeted nerve stimulation.
- **Beyond the brain:** Studies heart and gut neural circuits and may help restore vision in retinal disorders such as retinitis pigmentosa.

Limitations

- Requires genetic modification of target cells to express light-sensitive proteins.
- Visible light cannot penetrate the skull and reach deep brain regions effectively; implanted optical fibres are often required.

4.3. INDIA'S FIRST 5.56 KM FREE-SPACE QUANTUM KEY DISTRIBUTION LINK

Context: India demonstrated its first 5.56 km Free-Space Quantum Key Distribution (QKD) link between the Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N) and Indian Institute of Technology (IIT) Gandhinagar, in collaboration with Indian deep-tech startup QNu Labs.

Quantum Key Distribution

- **QKD:** Uses quantum properties of photons to securely exchange encryption keys; the actual message is transmitted through conventional communication systems.
- **Free-space QKD:** Transmits keys through laser beams in open air, without fibre-optic cables.
- **Security principles:** The No-Cloning Theorem prevents perfect copying of unknown quantum states, while quantum measurement disturbances can reveal eavesdropping.

Challenges

- Requires direct Line-of-Sight (LoS) and precise alignment.
- Atmospheric turbulence, fog, rain and ambient light can disrupt transmission.

Key Features of the Breakthrough

- **Distance:** 5.56 km, extending beyond an earlier 300-metre demonstration in 2021.
- **Quantum Bit Error Rate (QBER):** Below 5%; lower error rates indicate a more reliable quantum channel.
- **Precision tracking:** Pointing, Acquisition and Tracking (PAT) technology maintains laser alignment.
- **Dual-layer security:** Combines QNu Labs' Armos hardware with BISAG-N's Vedic Kavach software, integrating QKD with Post-Quantum Cryptography (PQC) to protect communications against future quantum-computing threats.

4.4. NOBEL PRIZE IN PHYSICS 2026: ICECUBE NEUTRINO OBSERVATORY

Context: The Royal Swedish Academy of Sciences awarded the 2026 Nobel Prize in Physics to Francis Halzen for his role in developing the IceCube Neutrino Observatory and detecting high-energy astrophysical neutrinos.

IceCube Neutrino Observatory

- **Location:** Amundsen-Scott South Pole Station, Antarctica.
- **Structure:** World's largest particle detector, using approximately one cubic kilometre of clear Antarctic ice and 5,160 optical sensors. Completed in December 2010.
- **Working:** Neutrinos occasionally collide with atomic nuclei in ice, producing charged particles that emit faint blue light. Sensors detect this light to estimate neutrino energy and direction.
- **Predecessor:** The Antarctic Muon And Neutrino Detector Array (AMANDA) demonstrated the feasibility of detecting neutrinos in Antarctic ice.

Neutrinos: Key Facts

- **Nature:** Elementary particles belonging to the lepton family, often called ghost particles because they interact extremely weakly with matter.
- **Sources:** The Sun, stars, supernovae, cosmic rays, radioactive decay, nuclear reactors and particle accelerators.
- **Charge:** Electrically neutral; unaffected by electromagnetic fields.
- **Interactions:** Primarily through the weak nuclear force and gravity, not the strong or electromagnetic forces.
- **Abundance:** Among the most abundant particles in the universe; approximately 65 billion solar neutrinos pass through each square centimetre every second.
- **Mass:** Have tiny but non-zero mass, established through neutrino oscillations. Takaaki Kajita and Arthur B. McDonald received the 2015 Nobel Prize in Physics for discovering neutrino oscillations.

India-based Neutrino Observatory

- **Proposed** as a Mega Science Project under the 11th Five-Year Plan to study neutrino properties, particularly atmospheric neutrinos.
- **Location:** Bodi West Hills, Theni district, Tamil Nadu.
- **Underground** facility: Proposed access tunnel of approximately 2,100 metres, with over one kilometre of rock shielding the detector from cosmic-ray background.

4.5. NOBEL PRIZE IN CHEMISTRY 2026: NON-LINEAR EFFECTS AND AUTOCATALYSIS

Context: The Royal Swedish Academy of Sciences awarded the 2026 Nobel Prize in Chemistry to Henri B. Kagan (France) and Kenso Soai (Japan) for discoveries involving non-linear effects and autocatalysis in asymmetric organic synthesis, helping explain the origin of biological homochirality.

Chirality and Homochirality

- **Chirality:** A property of molecules whose mirror images cannot be superimposed on each other.
- **Enantiomers:** The two mirror-image forms of a chiral molecule.
- **Biological homochirality:** Living systems predominantly use one molecular form; human proteins contain almost exclusively left-handed amino acids.
- **Racemic mixture:** A mixture containing equal amounts of both enantiomers, commonly produced in conventional synthesis.

Key Scientific Contributions

- **Henri B. Kagan (1986):** Non-linear effect. Demonstrated that a chiral catalyst can produce a disproportionately high excess of one enantiomer compared with the catalyst's own composition. Less-active pairs of oppositely handed catalyst molecules can suppress the minority form.
- **Kenso Soai (1995):** Asymmetric autocatalysis. Discovered the Soai reaction, in which a chiral product catalyses its own formation.
- **Amplification (2003):** Demonstrated that a small initial excess of one enantiomer can be amplified through self-reinforcing reactions, producing high enantiomeric purity.

Charles Frank's Hypothesis (1953)

Physicist Charles Frank proposed that biological homochirality could emerge through three processes:

- **Asymmetric initiation:** A chiral catalyst initiates a reaction favouring one enantiomer.
- **Amplification:** The favoured enantiomer increases while the other is suppressed, supported by Kagan's non-linear effects.
- **Autocatalysis:** The product promotes its own formation, creating a self-reinforcing cycle, demonstrated experimentally by Soai.

4.6. OJ 287: RARE BINARY BLACK HOLE SYSTEM

Context: A 10-year study by scientists from the Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, provided new insights into OJ 287.

- **Location:** Approximately 4 billion light-years from Earth.
- **Nature:** A rare blazar containing two orbiting supermassive black holes with an orbital period of about 12 years.
- **Mass:** The central black hole is estimated to be at least 3.89 billion solar masses.
- **Blazar:** An active galactic nucleus whose relativistic plasma jet points towards Earth, emitting radiation from radio waves to gamma rays.
- **Study findings:** Examined black hole positions, brightness, spectra, polarisation and possible emissions from the smaller black hole.
- **Significance:** Helps study relativistic jets, binary black holes and multimessenger astronomy, combining observations such as electromagnetic radiation, gravitational waves, neutrinos and cosmic rays.

4.7. THIRD INTERNATIONAL BHARAT 6G SYMPOSIUM 2026

Context: The Union Minister for Communications inaugurated the symposium in New Delhi to accelerate sixth-generation (6G) telecommunications research and international cooperation.

Key Highlights

- **Organiser:** Bharat 6G Alliance (B6GA), connecting industry, academia, government and international technology organisations.
- **International partnerships:** Signed five Memoranda of Understanding (MoUs) with GSMA, one6G Association, GTI Alliance, 6G Industry Forum and VoICE.
- **New Delhi Declaration:** A follow-up report reviewed progress since its adoption in 2025, promoting secure, open, interoperable, inclusive and sustainable 6G.

Bharat 6G Vision

- **Launch:** 2023; aims to make India a leading contributor to 6G design, development and deployment by 2030.

- **100 5G Labs:** Promote telecommunications research, experimentation and skill development.
- **Telecom Technology Development Fund (TTDF):** Supports indigenous telecommunications research and development.
- **Bharat 6G Alliance:** Strengthens domestic innovation, startups and industry-academia collaboration.

4.8. TRISHNA SATELLITE

Context: The Indo-French Thermal Infra-Red Imaging Satellite for High-resolution Natural Resource Assessment (TRISHNA) mission is under development, with the Indian Space Research Organisation (ISRO) expecting launch within 12 to 16 months, according to the report.

Key Features

- **Collaboration:** Joint Earth-observation mission of ISRO and France's National Centre for Space Studies (CNES).
- **Objectives:** Measures land-surface temperature, emissivity, vegetation conditions and radiation to assess surface energy balance and ecosystem dynamics.
- **Applications:** Monitors agricultural water use, irrigation efficiency, crop water stress, evapotranspiration, droughts, urban heat islands and ecosystem health.
- **Launch vehicle:** Planned for launch using India's Polar Satellite Launch Vehicle (PSLV).

Scientific Payloads

- **Thermal Infrared (TIR):** Developed by CNES to measure thermal emissions from Earth's surface.
- **Visible-Near Infrared and Short-Wave Infrared (VNIR-SWIR):** Developed by ISRO to observe surface features and vegetation conditions.

India-France Cooperation

- **TRISHNA** is the **third** joint satellite mission between India and France, following **Megha-Tropiques** and **SARAL**.
- ISRO provides the satellite bus and VNIR-SWIR payload, while CNES provides the TIR payload. Both agencies will jointly process scientific data.

4.9. INDIA'S FIRST CYBER TROJAN HORSE INSTALLATION UNVEILED IN KOCHI

Context: The Trojan Project, India's first Cyber Trojan Horse installation, was unveiled at the c0c0n 2026 cybersecurity conference in Kochi, Kerala, to raise awareness about cyber threats and safer digital behaviour.

About c0c0n 2026

- **Organisers:** Kerala Police Cyberdome and Information Security Research Association (ISRA).
- **ISRA:** A registered scientific society promoting information security research and cybersecurity innovation.

Trojan Horse in Cybersecurity

- **Meaning:** Malicious software disguised as legitimate software to gain access to devices or steal data.
- **Origin:** The term appeared in professional literature in James Anderson's 1972 study.
- **Operation:** Typically relies on users downloading or opening malicious files.
- **Trojan:** Disguises itself as legitimate software; does not self-replicate.
- **Virus:** Attaches to files or programs and replicates when executed.
- **Worm:** Self-replicates and spreads autonomously across networks.

4.10. NASA'S PERSEVERANCE ROVER SETS NEW DRIVING RECORD ON MARS

Context: NASA's Perseverance rover travelled 45.22 km on Mars, surpassing the previous off-Earth driving record of 45.16 km held by Opportunity.

About Perseverance

- **Mission:** Studies Martian geology, past habitability and potential evidence of ancient microbial life; collects rock and regolith samples for possible return to Earth.
- **Location:** Jezero Crater, which likely contained an ancient lake and river delta.
- **Autonomous navigation:** Uses AutoNav and the Vision Compute Element for independent movement and rapid image processing.
- **Power source:** Multi-Mission Radioisotope Thermoelectric Generator (MMRTG), powered by plutonium-238.
- **Potential biosignature:** NASA reported a possible biosignature in ancient rocks near a former river channel; this does not confirm past life.
- **Mission extension:** Extended to explore the crater rim until approximately the end of 2028.

Opportunity Rover

- **Mission:** Landed on Mars in 2004 alongside its twin, Spirit.
- **Significance:** Found evidence of ancient habitable conditions and operated for nearly 15 years, around 60 times longer than planned.

4.11. KUFRI JAMUNIA: INDIA'S BIOFORTIFIED PURPLE POTATO

Context: The Indian Council of Agricultural Research–Central Potato Research Institute (ICAR-CPRI) developed Kufri Jamunia, a biofortified purple potato released in 2024, to support nutritional security.

Key Features

- **Biofortification:** Improves crop nutritional content through plant breeding to address hidden hunger, or micronutrient deficiencies despite adequate calorie intake.
- **Appearance:** Dark purple skin and flesh, oblong tubers, shallow eyes and mealy texture; around 10 to 12 tubers per plant.
- **Yield:** Approximately 32 to 35 tonnes per hectare under recommended practices; station trials recorded up to 49 tonnes per hectare in 90 days.
- **Marketability:** Nearly 90% of trial produce was marketable; dormancy lasts 6 to 8 weeks, with good storage quality.
- **Nutrition:** Contains vitamin C, anthocyanins, carotenoids, iron and zinc. Anthocyanins produce the purple colour and have antioxidant properties.
- **Cultivation:** Performs well in multi-location trials and is recommended for the North Indian plains.

Other ICAR-CPRI Potato Varieties

- **Kufri Neelkanth (2018):** First purple-skinned specialty potato developed by ICAR-CPRI; known for high antioxidant content and suitable for several northern and central Indian states.
- **Kufri Manik (2021):** Deep-red, round tubers with yellow flesh; rich in anthocyanins, zinc and iron.

4.12. NASA'S PUFFINS SPACE TELESCOPE MISSION

Context: NASA appointed Indian-origin astronomer Dr. Ramya Anche, Assistant Research Professor at the University of Arizona, as Principal Investigator of the PUFFINS mission, planned for launch in 2030.

- **Full form:** Polarimetry in the Ultraviolet to Find Features in INTERstellar dust.
- **Programme:** Small Satellite (SmallSat) mission selected under NASA's Astrophysics Pioneers programme.
- **Objective:** Study interstellar dust to improve understanding of star and planet formation and the evolution of the universe.
- **Technology:** A 10-inch telescope will use ultraviolet (UV) spectropolarimetry to observe approximately 70 distant stars.
- **Significance of UV:** Detects dust grains as small as 0.05 microns, difficult to study using visible and infrared light.
- **Spectropolarimetry:** Measures the polarisation of starlight affected by dust grains aligned with galactic magnetic fields, helping determine dust properties.
- **Interstellar dust:** Mainly composed of silicates and carbon-based materials; influences starlight and contributes to star and planet formation.
- **Indian collaboration:** Includes the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, and the Indian Institute of Astrophysics (IIA), Bengaluru.

4.13. INDIAN SCIENTISTS IDENTIFY MARTIAN ANALOGUE SITES

Context: Indian scientists identified locations in Tamil Nadu and Chile resembling Mars in geological, chemical and physical characteristics.

- **Melanterite:** Found in Neyveli, Tamil Nadu; indicates brief wet, acidic and oxidising conditions.
- **Gypsum:** Found in Chile's Atacama Desert and Tamil Nadu's Tiruchirappalli Badlands; a hydrous sulphate mineral indicating past water-rock interactions.
- **Technology:** Laser Raman Spectrometer, supported by the Department of Science and Technology's Fund for Improvement of Science and Technology Infrastructure (DST-FIST).

About Mars

- **Position:** Fourth planet from the Sun, known as the Red Planet due to iron-rich surface dust.
- **Surface:** Cold, rocky desert with volcanoes, deep canyons and polar ice caps.
- **Atmosphere:** Thin and composed mainly of carbon dioxide; unsuitable for human respiration.
- **Water:** Contains water ice and evidence of ancient rivers and lakes; no life has been confirmed.
- **Duration:** A Martian day is approximately 24.6 hours; a year lasts 687 Earth days.
- **Moons:** Phobos and Deimos.

4.14. BHASHINI AND IISC DEVELOP TEXT-TO-SPEECH MODELS FOR SOURASHTRA

Context: The Digital India BHASHINI Division under the Ministry of Electronics and Information Technology (MeitY), in collaboration with the Indian Institute of Science (IISc), Bengaluru, developed artificial intelligence-based Text-to-Speech (TTS) models for Sourashtra.

- **Language:** Minority Indo-Aryan language spoken mainly by the Sourashtra community in Tamil Nadu, with approximately 2.48 lakh speakers according to Census 2011.
- **Technology:** Uses the Variational Inference with adversarial learning for end-to-end Text-to-Speech (VITS) architecture to convert written text directly into speech.
- **Language support:** Processes text in Tamil and Sourashtra scripts and supports male and female voices.
- **AIKOSH:** BHASHINI's artificial intelligence knowledge-sharing platform hosts the SPICOR TTS 3.0 Sourashtra corpus, supporting research on Indian-language artificial intelligence.

CULTURE

1. NEW ADDITIONS TO INDIA'S UNESCO TENTATIVE LIST

Context: The Ministry of Culture and Tourism announced the inclusion of five new heritage properties and serial transnational proposals to India's UNESCO Tentative List. With these new additions, India's total count on the Tentative List has increased to 78

Bagh Cave Paintings, Madhya Pradesh

- **Period and history:** Gupta period (4th–6th centuries CE). Inscriptions (358–487 CE) mention Valkha and Vikha-adishthana, indicating political and administrative importance.
- **Location and structure:** Nine rock-cut Buddhist caves on the southern Vindhyan slopes along the Baghni River, carved into the region's only sandstone outcrop amid basaltic terrain.
- **Monastic features:** Associated with monk Dataka; contains Chaityagrihas (assembly halls), Viharas (monastic residences), pillared verandas and stupas.
- **Paintings:** Technically linked to Ajanta but regionally distinctive. Uses earth- and lime-based plaster and mineral pigments, including lapis lazuli, terre verte, ochre and carbon.
- **Artistic parallels:** Ajanta (India), Sigiriya (Sri Lanka) and Mogao (China).

Udaigiri Caves, Madhya Pradesh

- **Period and patronage:** Mainly late 4th to early 5th centuries CE, under Gupta rulers Chandragupta II and Kumaragupta I; comprises 20 caves.
- **Architecture:** Transition from monolithic rock-cut structures to freestanding temples with sanctums, mandapas and axial entrances.
- **Religious diversity:** Primarily Vaishnavite and Shaivite, with Jain excavations.
- **Artistic influence:** Blends Mathura and Malwa traditions with Gupta aesthetics, influencing North and Central Indian temple architecture.
- **Key sculptures:** Colossal Varaha panel, depicting Vishnu rescuing Prithvi (Bhudevi), symbolising cosmic restoration and royal authority; reclining Anantasayana Vishnu.

Temples of the Chambal Valley, Madhya Pradesh

- **Sites and period:** Bateshwar, Padavali and Kakarmath in Morena district, dating to the 8th–11th centuries CE under the Gurjara-Pratihara and Kachchhapaghata dynasties.
- **Architecture:** Regional Nagara style, featuring axial planning, prominent shikharas (spires), intricate sandstone carvings and dry masonry, using interlocked stones without mortar.

Ginnorgarh Fort, Madhya Pradesh

- **Location and defence:** Tribal hill-fort within Ratapani Wildlife Sanctuary, protected by forests, ravines and steep slopes.
- **History:** Fortified capital of the Raj Gond rulers of the Garha Kingdom (15th–18th centuries). Following Rani Durgavati's defeat in 1564 CE, the region came under Mughal control while retaining Gond influence.

- **Spatial organisation:** Morcha, outer defensive and service zone; Amghera, middle administrative and military-residential zone; royal core, containing palaces and elite residences.
- **Construction:** Rani Mahal contains rare Gond court paintings. Local stone, lime and surkhi were bonded using organic materials such as jaggery and Bael pulp.
- **Cultural synthesis:** Gond planning incorporated Mughal and Indo-Islamic features, including engrailed arches and multifaceted pillars.

Rangpur–Sivasagar Historical Ensemble, Assam

- **Historical significance:** Political, ceremonial and architectural centre of the Tai Ahom Kingdom. Siuka-pha entered Assam from present-day Myanmar in 1228 CE; the Ahoms ruled the Brahmaputra Valley for nearly 600 years.
- **Political legacy:** Resisted Mughal expansion, notably at the Battle of Saraighat (1671). Burmese invasions and British annexation following the Treaty of Yandaboo (1826) ended Ahom rule. Rangpur became capital in 1704, followed by Sivasagar as a major centre.
- **Architecture:** Evolved from wood and bamboo to brick and stone. Temples or Dols feature octagonal plinths and distinctive hybrid shikharas.
- **Hydraulic engineering:** Reservoirs including Joysagar, Gaurisagar and Sivasagar were built using the Paik system, a form of corvée labour. The Nagastambha helped locate water sources; surrounding moats (yamunas) supported water regulation, year-round supply and erosion control.
- **Major structures:**
 - **Rang Ghar:** One of Asia's oldest surviving amphitheatres, with an inverted boat-shaped roof; hosted royal sports and Rongali Bihu celebrations.
 - **Talatal Ghar (Kareng Ghar):** Royal palace and military citadel with four above-ground and three underground levels.
 - **Ghanashyam House:** Bengali atachala-style structure combining terracotta and Islamic elements.
 - **Pohugarh:** Regarded as Asia's first natural open-air zoo.
 - **Namdang Stone Bridge (1703):** Built largely from a single stone monolith using traditional organic mortar.
- **Engineering legacy:** Demonstrates indigenous adaptation to floods and earthquakes.

Sites of Satyagraha – Serial Transnational Proposal: Nine sites across South Africa and India tracing Gandhi's life and the development of Satyagraha. Two sites relate to his South African stay (1893–1914), and seven to the Indian movement.

- **Early phase: South Africa**
 - **Pietermaritzburg Station:** Gandhi was removed from a first-class train in 1893, shaping his resistance to racial discrimination.
 - **Phoenix Settlement (1904):** Gandhi's first ashram settlement and base of Indian Opinion, promoting truth and Ahimsa (non-violence).
- **Movement-building phase: India**
 - **Champaran, Bihar:** Gandhi's first Satyagraha in India (1917).
 - **Sabarmati Ashram, Gujarat:** Established in 1917; associated with the Dandi March (Salt Satyagraha), 1930.
 - **Mani Bhavan, Mumbai:** Gandhi's base during 1917–1934; linked to the Non-Cooperation and Civil Disobedience Movements.
- **Institutional phase: India**
 - **Harijan Sevak Sangh, Delhi (1932):** Promoted social equality and opposed untouchability.
 - **Sevagram Ashram, Wardha (1936):** Focused on rural development, self-reliance and Swaraj.

- **Aga Khan Palace, Pune:** Gandhi's detention site (1942–1944); houses the samadhis of Kasturba Gandhi and Mahadev Desai.
- **Gandhi Smriti, Delhi:** Gandhi's final residence and assassination site (30 January 1948).

UNESCO Tentative List

- Inventory of cultural and natural properties considered by a State Party to possess Outstanding Universal Value (OUV) and potential for World Heritage status.
- **Nomination requirement:** Tentative List inclusion is mandatory before nomination; UNESCO guidelines require a site to remain listed for at least one year before nomination.
- World Heritage Sites: India has 43 UNESCO World Heritage Sites, including Santiniketan, the Sacred Ensembles of the Hoysalas and Assam's Moidams.

2. POINTERS FOR PRELIMS

2.1. SOFT TENNIS

Context: Jay Meena won bronze in the men's individual Soft Tennis event at the 2026 Asian Games, becoming India's first Asian Games medallist in the sport.

- **Performance:** Defeated Sherwin Nuguit of the Philippines in the quarter-final before losing to Japan's Takuya Kurosaka in the semi-final.
- **Origin:** Japan; developed as a variation of lawn tennis.
- **Features:** Uses lightweight rubber balls and specialised equipment.
- **Popularity:** Particularly popular in East and Southeast Asia.
- **Significance:** Raises Soft Tennis's profile in India and may encourage youth participation.

acoustic qualities compared with instruments such as the dhol and dholak.

- **Craftsmanship:** Uses locally sourced red soil and indigenous manufacturing techniques.

Significance of GI Recognition

- **Artisan protection:** Provides legal protection and a distinct market identity.
- **Economic opportunities:** Can expand market access nationally and internationally.
- **Cultural preservation:** Promotes Jharkhand's tribal and folk heritage.

Other GI-Tagged Products of Jharkhand

- **Sohrai-Khovar Painting:** Jharkhand's first GI-tagged product.
- **Kesariya Kalakand:** Traditional sweet associated with Koderma.

2.2. JHARKHAND'S TRADITIONAL MANDAR INSTRUMENT GETS GI TAG

Context: Jharkhand's traditional Mandar percussion instrument received a Geographical Indication (GI) tag from the Geographical Indications Registry, Chennai, recognising its distinctive cultural identity and craftsmanship.

Key Features

- **Cultural significance:** Associated with tribal communities, folk performances, festivals and social gatherings.
- **Construction:** Traditionally features one side made entirely of soil, giving it distinctive

2.3. BIRTH ANNIVERSARIES OF MAHATMA GANDHI AND LAL BAHADUR SHASTRI

Context: On 2 October 2026, India observed the birth anniversaries of Mahatma Gandhi and former Prime Minister Lal Bahadur Shastri. It also marked the death anniversary of K. Kamaraj.

Mahatma Gandhi (1869–1948)

- **Birth:** 2 October 1869, Porbandar, Gujarat; studied law in England (1888–1891).

- **Return to India:** 9 January 1915, observed as Pravasi Bharatiya Diwas. Established Sabarmati Ashram (1917).
- **Core principles:** Satyagraha (truth-force), Ahimsa (non-violence) and ethical means; promoted truth, self-reliance and disciplined community life.
- **Major movements:** Champaran Satyagraha (1917), Kheda Satyagraha (1918), Rowlatt Satyagraha (1919), Non-Cooperation Movement (1920–22), Civil Disobedience Movement and Dandi March (1930), Quit India Movement (1942).
- **Writings:** Hind Swaraj and An Autobiography: The Story of My Experiments with Truth.
- **Death and legacy:** Assassinated on 30 January 1948. The United Nations observes 2 October as the International Day of Non-Violence.

Lal Bahadur Shastri (1904–1966)

- **Birth:** 2 October 1904, Mughalsarai, Uttar Pradesh. Rejected the caste-associated surname Srivastava; received the title “Shastri” from Kashi Vidyapeeth in 1926.
- **Freedom struggle:** Joined the Non-Cooperation Movement at age 16; participated in the Civil Disobedience Movement and spent over seven years in British prisons. Opposed dowry and accepted only a charkha and Khadi as dowry.
- **Political career:** Parliamentary Secretary (1946); later served as Uttar Pradesh Home Minister and held Union portfolios including Railways, Transport and Communications, Commerce and Industry, and Home Affairs.
- **Ministerial ethics:** Resigned as Railway Minister in 1956, accepting moral responsibility after a train accident.
- **Prime Minister:** Served from 1964 to 1966, succeeding Jawaharlal Nehru.
- **1965 Indo-Pakistan War:** Gave the slogan “Jai Jawan, Jai Kisan”, linking national security with food security.
- **Death:** Died in Tashkent on 11 January 1966, shortly after signing the Tashkent Declaration.

K. Kamaraj (1903–1975)

- **Freedom struggle:** Participated in the Salt Satyagraha (1930) and was imprisoned during the Quit India Movement (1942); elected to the Constituent Assembly in 1946.
- **Political career:** Chief Minister of Madras State (1954–1963); Congress President (1963).
- **Kamaraj Plan:** Encouraged senior Congress leaders to resign from ministerial positions and strengthen the party organisation, earning him the title “Kingmaker”.
- **Education:** Promoted the Mid-Day Meal Scheme to improve school enrolment and reduce rural illiteracy. His birth anniversary is observed as Education Development Day in Tamil Nadu.
- **Legacy:** Died on 2 October 1975; posthumously awarded the Bharat Ratna in 1976.

2.4. SENGOL IN NEW NCERT TEXTBOOK

Context: The Sengol, installed in the new Parliament building in 2023, is featured in NCERT Class 9 textbook Understanding Society and Beyond – Part 2, linking it to righteous governance and the 1947 transfer of power.

- **Meaning:** Derived from Tamil semmai (righteousness); symbolises just governance, unlike Kodungol (unjust rule). It reminds rulers of their duty to govern fairly.
- **Literary references:**
 - Silappadikaram refers to restoring the “uprightness of the Sengol”.
 - Tirukkural discusses Sengonmai (righteous rule), emphasising justice over military power.
 - Purananuru, Kurunthogai and Tholkappiyam refer to the sceptre as a symbol of just governance.
- **Historical role:** Associated with Chola and Nayaka coronation traditions; symbolised the transfer of authority and the ethical responsibility of rulers. Ancient Tamil traditions included it among the essential constituents of a kingdom.
- **Transfer of power (1947):** C. Rajagopalachari suggested using the Sengol as a symbol of power transfer. The Thiruvavaduthurai Adheenam, a Saivaite monastery in Tamil Nadu, commissioned a gold-plated silver Sengol

topped with Nandi. On 14 August 1947, it was ceremonially handed to Jawaharlal Nehru after ritual sanctification.

- **Parliament (2023):** The Sengol installed in the new Parliament building features Nandi, symbolising steadfastness, justice and adherence to truth.

2.5. SHYAMJI KRISHNA VARMA (1857–1930)

Context: The Prime Minister paid tribute to Shyamji Krishna Varma on his birth anniversary on 4 October 2026.

- **Birth:** 4 October 1857, Mandvi, Kutch, Gujarat. A Sanskrit scholar, he received the title Pandit from scholars of Kashi.
- **Arya Samaj:** Influenced by Swami Dayanand Saraswati; became the first President of the Bombay Arya Samaj in 1877.
- **Nationalist ideas:** Founded The Indian Sociologist, an English monthly, in London in January 1905. Advocated Swaraj (self-rule) and complete independence.
- **Indian Home Rule Society:** Established in London in February 1905 to promote Indian self-rule.
- **India House:** Founded in London in 1905 to support Indian students; later became a centre of revolutionary nationalism. Associated with V.D. Savarkar, Madam Bhikaji Cama and Virendranath Chattopadhyaya.
- **Inner Temple:** One of London's four historic Inns of Court; barred Varma from practising law over his anti-colonial writings. He was reinstated posthumously in 2015.
- **Later life:** Moved from England to Paris and later Geneva during World War I; died on 30 March 1930.
- **Legacy:** Kranti Teerth, a memorial near Mandvi, was inaugurated in 2010.

2.6. NAVI PILLAY AND THE NOBEL PEACE PRIZE 2026

Context: South African jurist Navi Pillay, of Indian Tamil ancestry, was named the 2026 Nobel Peace Prize laureate.

- **ICTR:** As a judge of the International Criminal Tribunal for Rwanda (ICTR), contributed to the landmark Akayesu case (1998), recognising rape and sexual violence as acts of genocide.
- **International roles:** Served as a judge of the International Criminal Court (ICC), UN High Commissioner for Human Rights (2008–2014) and ad hoc judge at the International Court of Justice (ICJ) in the case concerning the Rohingya genocide in Myanmar.
- **Palestine:** Chaired the UN Independent International Commission of Inquiry on the Occupied Palestinian Territory (2021–2025).
- **Significance:** First South African woman and fifth South African overall to receive the Nobel Peace Prize.

US Sanctions on the ICC: The United States imposed broad economic sanctions on ICC officials and service providers, opposing the Court's jurisdiction over citizens of countries that are not parties to the Rome Statute.

International Criminal Court (ICC)

- **Established:** Under the Rome Statute (1998), which entered into force in 2002; headquartered in The Hague, Netherlands.
- **Jurisdiction:** Prosecutes individuals for genocide, war crimes, crimes against humanity and the crime of aggression.
- **Complementarity principle:** Acts as a court of last resort when national judicial systems are genuinely unwilling or unable to investigate or prosecute relevant crimes.
- **Membership:** The article reports 125 member states. The US, China and Russia are not parties to the Rome Statute.
- **India's position:** India is not a party, citing concerns over national sovereignty, exclusion of certain categories of weapons and the extensive powers of the UN Security Council (UNSC).

SCHEMES IN NEWS

1. 12. MISSION FOR AATMA-NIRBHARTA IN PULSES

Context: Launched on 11 October 2025, the Mission aims to achieve pulse self-sufficiency by 2030-31, reduce imports and increase farmers' incomes.

Key Features

- **Outlay:** ₹11,440 crore for 2025-26 to 2030-31.
- **Production targets:** 350 lakh tonnes of production, 1,130 kg/ha productivity and 310 lakh hectares of cultivated area by 2030-31, including 35 lakh additional hectares.
- **Priority crops:** Tur, Urad and Masur, focusing on high-yielding, pest-resistant and climate-resilient varieties.
- **Assured procurement:** The National Agricultural Cooperative Marketing Federation of India (NAFED) and National Cooperative Consumers' Federation of India (NCCF) will procure 100% of Tur, Urad and Masur offered by registered, willing farmers in participating States at the Minimum Support Price (MSP) under the Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA), from 2025-26 to 2028-29.
- **Food processing:** Under the Creation and Expansion of Food Processing and Preservation Capacities (CEFPPC) component of the Pradhan Mantri Kisan SAMPADA Yojana (PMKSY), 23 pulse-processing units were approved, of which 18 are complete.
- **Implementation:** The Indian Council of Agricultural Research (ICAR), Krishi Vigyan Kendras (KVKs) and State agricultural departments will promote technology adoption, soil health and mechanisation.
- **Three-tier monitoring:** National, State and district Steering Committees oversee implementation and progress.
- **Digital Crop Surveys and AgriStack:** Integrate Farmer IDs, Soil Health Card data and verified plot surveys for targeted nutrient delivery and improved harvest estimates.
- **Krishi Mapper:** Enables geo-fencing, land geo-tagging and real-time monitoring of seed demonstrations and crop yields.
- **E-Samriddhi and Vistaar:** Support direct payments, real-time market information and domestic pulse-price monitoring.

India's Pulses Sector

- **Major producers:** Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Gujarat, Andhra Pradesh, Karnataka, Jharkhand, Odisha and West Bengal.
- **Production growth:** Increased from 256.83 lakh tonnes in 2024-25 to 274.09 lakh tonnes in 2025-26, according to the Third Advance Estimates.
- **Cultivated area:** Expanded from 277.20 lakh hectares to 286.46 lakh hectares.
- **Productivity:** Increased from 926 kg/ha to 957 kg/ha in 2025-26.
- **Trade performance:** Import value declined by 31.52%, while export value increased by 13.40%.
- **Major export markets:** China, the United Arab Emirates (UAE), Bangladesh, the United States (USA) and Sri Lanka.

Conclusion: The Mission can strengthen nutritional security, agricultural resilience and farmers' incomes through higher domestic production, reduced import dependence and improved value addition, advancing sustainable pulse self-sufficiency.

Digital Monitoring and Traceability

- **SATHI portal:** Digitises seed production, certification, distribution and sales for end-to-end traceability.

2. SWACHHATA HI SEVA (SHS)

2026

Context: Conducted from 17 September to 2 October 2026 under the theme “Swachhata Mein Sahbhag; Swachh Bharat, Viksit Bharat”.

- **Background:** Annual campaign since 2017, leading up to Swachh Bharat Diwas (2 October).

Five Core Activity Pillars

- **Jan Bhagidari for Swachhata:** Four-way waste segregation at source, home composting, reduced littering, anti-single-use plastic drives, rallies and eco-friendly festivals under “Swachh Parv, Harit Parv”.
- **SafaiMitra Suraksha Seva Evam Samman Shivirs:** Healthcare, safety equipment, welfare services and recognition for sanitation workers and their families.
- **Swachhata Se Samridhi:** Promotes the 3Rs (Reduce, Reuse, Recycle) and circular economy through Kabaad Se Jugaad (useful products from waste) and Kabaad Se Kala (art from waste).
- **Swachh Paathshala – Yuva for Swachhata:** Engages students of Classes 6–12 through Swachhata Gyan Yatras to promote sanitation awareness.
- **Cleanliness Target Units and Public Places:** Cleans and maintains neglected sites; citizens can report issues through the Swachhata App and map sites on the SHS portal. Public toilets are assessed using FACES: Functional, Accessible, Clean, Eco-friendly and Safe.

Swachh Bharat Mission (SBM)

- **Launch:** 2 October 2014; one of the world's largest government-led sanitation initiatives.
- **Logo:** Mahatma Gandhi's spectacles, symbolising cleanliness and social responsibility.
- **SBM-Grameen (SBM-G):** Rural toilet access and usage, sanitation, and solid and liquid waste management.

- **SBM-Urban (SBM-U):** Urban sanitation, waste management, public spaces and cleanliness infrastructure.
- **Rural ODF status:** Rural India was declared Open Defecation Free (ODF) in 2019.

ODF Plus Villages

An ODF Plus village sustains its ODF status and manages solid waste, liquid waste and visual cleanliness.

- **Aspiring:** Manages either solid or liquid waste.
- **Rising:** Manages both solid and liquid waste.
- **Model:** Manages both waste streams, maintains visual cleanliness and displays ODF Plus awareness messages.

3. DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA (DDU-GKY) 2.0

Context: DDU-GKY completed 12 years in 2026. It provides industry-oriented skill training and employment opportunities to rural youth. India's youth population is projected to reach nearly 345 million by 2036, increasing the need for quality skilling.

Special Programmes

- **North-Eastern Region:** 10% of DDU-GKY allocation earmarked for North-Eastern States.
- **Himayat:** For rural and urban youth in Jammu and Kashmir and Ladakh, covering both Below Poverty Line (BPL) and Above Poverty Line (APL) categories; supports wage employment, self-employment and gig work.
- **Roshni:** Residential skill training in Left-Wing Extremism (LWE)-affected districts, with 40% mandatory participation of women; extended to Aspirational Districts.
- **Difficult Areas:** Project Implementing Agencies (PIAs) receive an additional 10% of base training cost per candidate as a Special Area Allowance.

Major Changes under DDU-GKY 2.0

- **End-to-end employment:** Covers training, placement, employment retention and career progression, with improved post-placement support and technology-based monitoring.
- **Training duration:** Minimum 576 hours:
 - 396 hours of domain-specific technical/job training.
 - 180 hours of compulsory non-domain training.
- **Placement:** Minimum placement period increased from 3 to 6 months; recognises wage, self and gig employment.
- **Job Melas:** State Rural Livelihood Missions (SRLMs) organise fairs at Gram Panchayat and block levels. Assistance: up to ₹50,000 per Gram Panchayat-level fair and ₹1 lakh per block-level fair.
- **Migration Support Centres (MSCs):** Established in major migration-origin and destination areas; annual funding increased from ₹10 lakh to ₹30 lakh per centre.
- **Digital management:** Integrated platform covers PIA onboarding, projects, training centres, candidates, assessment, certification, finances and placement tracking.
- **Transparency:** Real-time dashboards, public candidate portal with PIA performance ratings, automated registration and grievance redressal, certificate verification, face-authenticated attendance and digital assessments.
- **Skill India Digital Hub:** Integrated for course validation.

4. PRADHAN MANTRI ANUSUCHIT JAATI ABHYUDAY YOJANA (PM-AJAY)

Context: The Ministry of Social Justice and Empowerment reviewed PM-AJAY's progress and launched a Mobile App and Portal for transparent, efficient implementation.

Key Facts

- **Launch:** FY 2021-22; a 100% centrally sponsored scheme for the socio-economic and

educational empowerment of Scheduled Castes (SCs).

- **Merger of three schemes:**
 - Pradhan Mantri Adarsh Gram Yojana (PMAGY).
 - Special Central Assistance to Scheduled Castes Sub Plan (SCA to SCSP).
 - Babu Jagjivan Ram Chhatrawas Yojana (BJRCY).
- **Implementing Ministry:** Ministry of Social Justice and Empowerment.
- **Eligibility:** Priority under Grants-in-Aid is given to SC families/persons with annual income up to ₹2.5 lakh.
- **Village eligibility:** At least 40% SC population and a total population of 500 or more for infrastructure development.

Fund Allocation

- Up to 50%: Gap-filling activities in selected Adarsh Gram villages.
- 5%: Technical Support Group (TSG) and Project Implementation Units (PIUs).
- 2%: Hostel construction and repairs.
- **Remaining funds:** State/district-level projects based on SC population and Scheduled Caste Sub Plan (SCSP) parameters.
- **Asset maintenance:** State Governments or implementing agencies maintain completed infrastructure.

Major Components

- **Adarsh Gram:** Develops SC-dominated villages into model villages by addressing infrastructure and essential-service gaps, reducing socio-economic disparities and ensuring dignified living conditions.
- **Grants-in-Aid:** Supports livelihood generation, skill development, village infrastructure and residential educational facilities.
- **Hostels for SC students:** Supports hostel construction and repairs, particularly for students from rural and remote areas. By September 2026, 785 hostels had been completed.

5. ONE YEAR OF PM-SETU

Context: The Pradhan Mantri Skilling and Employability Transformation through Upgraded ITIs (PM-SETU) completed one year, with 850 Industrial Training Institutes (ITIs) identified and 14 ITI clusters approved.

Key Features

- **Launch:** 4 October 2025; outlay of ₹60,000 crore to modernise Government ITIs and make vocational training industry-oriented and demand-driven.
- **Hub-and-Spoke Model:** Component I covers 1,000 Government ITIs: 200 Hubs and 800 Spokes. Each Hub connects to around four Spokes, sharing advanced infrastructure, digital learning and incubation facilities.
- **Upgraded Facilities:** Hubs provide innovation centres, trainer training, production units and placement services; upgrades include smart classrooms, modern laboratories and industry-aligned courses.
- **National Skill Training Institutes (NSTIs):** Component II strengthens five NSTIs at Bhubaneswar, Chennai, Hyderabad, Kanpur and Ludhiana, including sector-specific National Centres of Excellence and international trainer-training partnerships.
- **Governance:** The National Steering Committee (NSC), chaired by the Secretary of the Ministry of Skill Development and Entrepreneurship (MSDE), provides policy direction and monitors implementation.
- **Industry-led management:** Special Purpose Vehicles (SPVs) manage upgraded ITI clusters. Proposed ownership: 51% Anchor Industry Partner, 24.5% Central Government and 24.5% State Government. Industry partners submit a Strategic Investment Plan (SIP).

Progress After One Year

- **ITI identification:** 850 ITIs identified—172 Hubs and 678 Spokes. Thirty-six States/UTs identified clusters and created budget heads; 35 established State Steering Committees; 26 began inviting industry participation.

- **Expansion:** NSC approved nationwide rollout covering 200 ITI clusters, based on industry readiness and implementation capacity.
- **Industry investment:** Fourteen SIPs across eight States and one Union Territory, involving ₹3,446 crore, approved. Sectors include steel, manufacturing, healthcare, pharmaceuticals, infrastructure, automobiles and defence electronics.
- **New-age courses:** Directorate General of Training (DGT) introduced 32 new courses under the Craftsmen Training Scheme (CTS), covering artificial intelligence, cybersecurity, electric vehicles, semiconductors, robotics, green hydrogen, drones, the Internet of Things, solar energy and 5G.
- **International partnerships:** Singapore—NSTI Chennai; France—NSTI Kanpur; Australia—NSTI Bhubaneswar. A Joint Declaration of Intent was exchanged with Germany for NSTI Hyderabad.

6. PRIME MINISTER DHAN-DHAANYA KRISHI YOJANA (PMDDKY)

Context: Approved on 16 July 2025 and launched on 11 October 2025, PMDDKY runs for six years from 2025–26 to improve agriculture and allied activities in 100 Aspirational Agricultural Districts. It is inspired by NITI Aayog's Aspirational Districts Programme.

Objectives and Key Features

- **Challenges** addressed: Low agricultural productivity, inadequate irrigation, limited agricultural credit and insufficient post-harvest infrastructure.
- **Objectives:** Improve irrigation and credit access; promote crop diversification, sustainable farming and productivity; expand storage facilities at panchayat and block levels.
- **District selection:** Based on low agricultural productivity, low cropping intensity and low agricultural credit disbursement. State/UT allocations consider shares of net cropped area and operational holdings, ensuring at least one selected district per State.

- **Convergence:** Integrates 36 Central schemes across 11 Ministries/Departments, State schemes and private-sector partnerships.
- **Nodal Ministry:** Department of Agriculture and Farmers Welfare (DA&FW), working with NITI Aayog, the National Bank for Agriculture and Rural Development (NABARD), other Ministries and States/UTs.

Implementation Structure

- **District level:** District Dhan-Dhaanya Krishi Yojana Samiti, headed by the District Collector/District Magistrate, prepares and implements the District Action Plan (DAP).
- **State level:** State Dhan-Dhaanya Krishi Yojana Samiti, chaired by the Chief Secretary, reviews and monitors DAPs.
- **National level:** National Executive Committee, chaired by the Union Agriculture Minister, and National Monitoring Committee, chaired by the DA&FW Secretary, oversee implementation.

District Action Plans and Monitoring

- **DAPs:** Use baseline data and local needs assessments to identify interventions, integrate Central and State schemes, and set outcome-based targets and annual milestones. Submitted to State departments for integration into annual action plans and funding approvals.
- **Performance indicators:** 121 indicators across 36 schemes—74 output indicators and 47 outcome indicators.
- **Monthly rankings:** PM-DDKY dashboard ranks districts using output indicators.

PM-DDKY FPO Sangam

- **Purpose:** December 2025 event enabling Farmer Producer Organisations (FPOs) to exchange experiences and improve productivity, market access and incomes.
- **Participation:** Over 72 FPOs from 15 States and 33 PMDDKY districts.

- **Focus areas:** Natural farming, oilseeds, bee-keeping, protected cultivation, micro-irrigation, institutional finance and digital agriculture.

Best Practices

- **Jaisalmer, Rajasthan:** An FPO with 1,236 farmer members adopted Integrated Pest Management (IPM)-based cumin cultivation across 2,000 acres and solar-powered sprinkler irrigation across 500 acres, improving water-use efficiency and productivity.
- **Gadchiroli, Maharashtra:** An FPO with 800 members established a rice-processing unit and a 900-metric-tonne warehouse, promoting local value addition and better price realisation.

7. FIVE YEARS OF PM GATISHAKTI

Context: The PM GatiShakti National Master Plan (PMGS-NMP), launched on 13 October 2021, has evolved into a Geographic Information System (GIS)-based platform for integrated infrastructure planning, multimodal connectivity and efficient resource utilisation.

Key Features

- **Objectives:** Improve multimodal and last-mile connectivity, reduce project delays, optimise resources and coordinate infrastructure development.
- **Coverage:** 58 Central Ministries/Departments and all 36 States/Union Territories.
- **Six guiding principles:** Integrated development, multimodal infrastructure, last-mile connectivity, faster land acquisition, fewer clearances and reduced ecological impact.
- **Seven infrastructure engines:** Roads, railways, ports, waterways, airports, mass transport and logistics infrastructure.
- **Scheme convergence:** Integrates initiatives such as Bharatmala, Sagarmala, inland waterways, dry/land ports and UDAN (Ude Desh ka Aam Naagrik).

- **Public platform:** Provides access to 230 approved datasets for site suitability, connectivity mapping, route alignment and compliance checks.

Institutional Framework

- **Network Planning Group (NPG):** Examines infrastructure proposals for integrated planning, coordination and optimisation; monitors developments under the Master Plan.
- **Empowered Group of Secretaries (EGoS):** Chaired by the Cabinet Secretary; oversees implementation, reviews progress and approves changes to the National Master Plan.
- **Technical Support Unit (TSU):** Provides domain expertise for project evaluation and supports the Logistics Division as the PM GatiShakti Secretariat.
- **Project appraisal:** By 11 August 2026, the NPG had evaluated 396 projects worth approximately ₹18.66 lakh crore; 256 were sanctioned and 198 were under implementation.

Integrated Transport and Logistics Authority (ITLA)

- **Long-term planning:** Prepares a National Transport Master Plan with a horizon of at least 10 years.
- **Project appraisal:** Assesses sectoral and annual transport plans, technically appraises projects costing ₹500 crore or more, and monitors implementation.
- **National Transport Data Repository (NTDR):** Integrates transport data from sources such as FASTag, Vahan and Goods and Services Tax Network (GSTN) e-way bills.

Gati Shakti Vishwavidyalaya (GSV)

- **Established:** 2022; a specialised university dedicated to transport and logistics.
- **Role:** Supports PM GatiShakti and the National Logistics Policy (2022) through education, executive training, research and knowledge centres.

Digital Technologies and Logistics Integration

- **GIS and spatial analysis:** Combines infrastructure, geographical, demographic and economic data; supports proximity analysis, identification of restricted-development areas and clearance assessments.
- **Economic and logistics nodes:** Maps industrial corridors, textile and pharmaceutical clusters, defence corridors, electronic parks, fishing clusters and agricultural zones.
- **Example—Khagaria–Purnea Corridor:** Planned in Bihar to connect five PM GatiShakti Economic Nodes and 11 logistics nodes.
- **Unified Logistics Interface Platform (ULIP):** Integrates government logistics systems through Application Programming Interfaces (APIs). By July 2026, it connected 46 government systems across 12 Central Ministries through 142 APIs.
- **Logistics Data Bank (LDB):** Enables real-time tracking of export-import (EXIM) containers.
- **Private-sector access:** Since October 2025, a Query-Based Analytics Mechanism developed by BISAG-N (Bhaskaracharya National Institute for Space Applications and Geo-informatics) has enabled regulated access to selected non-sensitive datasets.
- **Digital monitoring:** The PM GatiShakti NMP Dashboard supports multisectoral project monitoring, while the Data Uploading and Management System (DUMS) enables decentralised, real-time data updates.

8. BHARAT AUDYOGIK VIKAS YOJANA (BHAVYA)

Context: Approved in March 2026 and notified on 10 April 2026, BHAVYA has an outlay of ₹33,660 crore to develop 100 plug-and-play industrial parks across India.

Objectives and Key Features

- **Objectives:** Strengthen manufacturing infrastructure, attract investment, support Micro, Small and Medium Enterprises (MSMEs), generate employment and improve ease of doing business.

- **Implementation period:** FY 2026–27 to FY 2031–32 (six years).
- **Financial assistance:** Up to ₹1 crore per acre, subject to scheme conditions and project category.
- **Nodal agency:** Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
- **Project Management Agency:** National Industrial Corridor Development Corporation (NICDC).
- **Selection:** Challenge-based, phased selection; up to 50 parks in the first phase. Criteria include project readiness, land availability and industrial potential.
- **Land requirement:** Generally, minimum 100 acres in non-hilly States and 25 acres in eligible hilly States, northeastern States, Union Territories and smaller States. Parks up to 1,000 acres may be considered.
- **Institutional mechanism:** Special Purpose Vehicles (SPVs) manage development, operations, investor facilitation and maintenance.
- **BHAVYA Portal:** Launched in June 2026 for project submission, appraisal, evaluation, implementation and monitoring.

Infrastructure and Facilities

- **Basic infrastructure:** Internal roads, electricity, water supply, drainage, common effluent treatment facilities and Information and Communication Technology (ICT)-enabled administration.
- **Underground utilities:** No-dig utility corridors simplify maintenance and reduce disruption.
- **Ready-to-use facilities:** Factory sheds, built-to-suit units, testing and certification facilities, and warehouses.
- **Worker welfare:** Housing, healthcare, skill development centres and social amenities.
- **External connectivity:** Up to 25% of approved funding may support road, rail and last-mile logistics infrastructure.

9. PM E-DRIVE SCHEME

Context: The ₹10,900-crore PM E-DRIVE Scheme promotes electric vehicle (EV) adoption, charging infrastructure and domestic electric mobility manufacturing.

Key Features

- **Launch:** Notified on 29 September 2024, effective retrospectively from 1 April 2024; replaced the Electric Mobility Promotion Scheme (EMPS) 2024.
- **Duration:** Until 31 March 2028, with different deadlines for certain vehicle categories.
- **Progress (July 2026):** Over 23.2 lakh EVs received incentives; ₹689 crore approved for 6,562 EV chargers.
- **Vehicles covered:** Electric two-wheelers, three-wheelers, trucks, ambulances and buses; supports **deployment of 14,000 e-buses**.
- **Charging infrastructure:** Provides funding for public EV charging facilities.
- **Domestic manufacturing:** Promotes localisation through the Phased Manufacturing Programme (PMP); registered Original Equipment Manufacturers (OEMs) have localised models and obtained compliance certificates.
- **Battery manufacturing:** Complements the Production Linked Incentive (PLI) Scheme for Advanced Chemistry Cell (ACC) Battery Storage.
- **Battery waste:** The Battery Waste Management Rules, 2022, notified by the Ministry of Environment, Forest and Climate Change, provide a framework for environmentally sound battery recycling and waste management.

10. GOBARDHAN SCHEME

Context: The Galvanizing Organic Bio-Agro Resources Dhan (GOBARDhan) scheme promotes conversion of organic waste into clean energy and manure.

Key Features

- **Launch:** 2018 under the Swachh Bharat Mission–Grameen (SBM-G).
- **Nodal Ministry:** Ministry of Jal Shakti, through the Department of Drinking Water and Sanitation (DDWS) for its SBM-G component.
- **Feedstock:** Animal dung, crop residue, kitchen and food waste, and other biodegradable waste.
- **Outputs:** Biogas, Compressed Bio-Gas (CBG) and bio-slurry/organic manure.

Under SBM-G Phase II

- **Objective:** A key component of solid waste management, promoting decentralised waste-to-energy solutions in rural areas.
- **Financial assistance:** Up to ₹50 lakh per district for community and cluster-level biogas plants during 2020–21 to 2026–27.
- **Implementation:** Encourages Gram Panchayats and local institutions to participate in waste management.



ETHICS

1. INVOLVEMENT OF CHILDREN IN POLITICAL CAMPAIGNING

Context: The Tamilaga Vettri Kazhagam (TVK), led by actor C. Joseph Vijay, attracted substantial youth support. Controversy arose over appeals asking children to persuade their parents to vote for the party.

- **Madras High Court observations:** Justice D. Bharatha Chakravarthy criticised involving children in electioneering and suggested that Parliament consider whether such practices should constitute grounds for setting aside an election. The petition was dismissed, with no evidence established that the election had been manipulated.

Stakeholders and Their Ethical Responsibilities	
Stakeholder	Ethical Responsibility
 Political parties and candidates	 Integrity, non-exploitation and responsible campaigning
 Children	 Expression of independent views , consistent with their evolving capacities
 Parents and guardians	 Protection, guidance and respect for children's autonomy
 Election Commission of India	 Electoral integrity, fairness and proportionate enforcement
 Judiciary and Parliament	 Constitutional safeguards, legal clarity and protection of rights
 Schools and educators	 Critical thinking, civic literacy and political neutrality
 Media and digital platforms	 Privacy protection , responsible amplification and prevention of exploitation
 Civil society and child-rights bodies	 Accountability, awareness and safeguarding children's interests
 Electorate	 Independent judgment based on policies, performance and public interest

Arguments Against Involving Children in Political Campaigning

- **Manipulation of parental choices:** Emotional attachment and repeated requests may undermine informed electoral choice. GS4: Respect for autonomy and informed consent requires persuasion without exploiting familial relationships.
- **Pester power:** Children's repeated demands may transfer consumer-marketing tactics into electoral campaigns, raising concerns about behavioural manipulation, instrumentalisation and exploitation of vulnerability. Ethical persuasion appeals to reason, unlike manipulation.
- **Erosion of child agency:** Scripting children for political messaging violates their autonomy and dignity. Immanuel Kant's deontological ethics opposes treating children merely as means for electoral gains.
- **Celebrity influence:** Celebrity appeal may overshadow policy evaluation and accountability. Max Weber's charismatic authority explains how personal appeal can replace rational political judgment.

- **Child welfare and digital privacy:** Campaign videos risk lasting reputational harm and unwanted exposure. Ethics of care and the precautionary principle demand protection of children's privacy, dignity and long-term welfare.
- **Democratic concerns:** Emotional pressure can weaken informed electoral choice. Jürgen Habermas's deliberative democracy emphasises reasoned public deliberation over manipulative political communication.

Arguments for Children's Political Participation

- **Right to political expression:** Children should express views on issues affecting them. John Stuart Mill's philosophy of liberty supports free expression with harm prevention and age-appropriate safeguards.
- **Democratic socialisation:** Political discussions foster civic awareness, critical thinking and responsible citizenship. John Dewey's conception of democracy as a way of life emphasises education and participatory learning.
- **Participation vs manipulation:** Genuine participation requires autonomy, voluntariness and authenticity, including freedom to disagree or refuse; adult scripting undermines independent agency.
- **Parental agency:** Children's appeals do not automatically invalidate parents' electoral choices. Autonomy and proportionality require safeguards against exploitation without unjustifiably restricting political expression or family discussions.

Children and Politics
Legal Framework and Ethical Considerations

1 Legal and Institutional Framework

- Representation of the People Act, 1951 – Section 123**
 - Defines corrupt electoral practices, including **undue influence under Section 123(2)**, which involves direct or indirect interference with the free exercise of electoral rights. Whether a particular appeal crosses this threshold depends on the facts and applicable legal standards.
- Article 19(1)(a)**
 - Protects **freedom of speech and expression**, relevant to political expression, while remaining subject to constitutionally permitted restrictions.
- UN Convention on the Rights of the Child (UNCRC)**
 - Article 12 recognises **children's right to express views** in matters affecting them.
- UNICEF participation framework**
 - Distinguishes meaningful child participation from manipulation and tokenism, emphasising **children's agency, informed involvement and freedom from instrumentalisation**.

2 Ethical Dilemmas and Value Conflicts

- Protection vs autonomy**
 - Balancing children's protection from political influence with their **right to participate** in public life.
- Freedom of expression vs prevention of exploitation**
 - Reconciling legitimate political expression with safeguards against the **instrumentalisation** of children.
- Political effectiveness vs ethical means**
 - Balancing electoral mobilisation with ethical campaigning that respects **children's dignity** and parental autonomy.
- Parental authority vs child agency**
 - Reconciling parental guidance with **children's evolving capacity** for independent thought and expression.
- Immediate participation vs long-term welfare**
 - Balancing children's willingness to participate with the **long-term risks** of digital exposure and reputational harm.
- Uniform rules vs contextual justice**
 - Balancing consistent safeguards with **context-sensitive assessments** based on age, voluntariness, scripting and purpose.

Ethical Theories and Thinkers

- **Immanuel Kant — Deontology:** Children should be treated as individuals with inherent dignity and autonomy, rather than merely as instruments for electoral gains.
- **John Stuart Mill — Liberty:** Children's freedom of expression should be protected while preventing coercion, exploitation and harm to others.

- **Jürgen Habermas — Deliberative Democracy:** Democratic choices should emerge from reasoned deliberation and informed judgment rather than emotional manipulation.
- **John Rawls — Justice as Fairness:** Political processes should ensure fairness and protect vulnerable individuals from exploitation.
- **Aristotle — Virtue Ethics:** Political leaders should demonstrate prudence, justice, temperance and moral responsibility while conducting election campaigns.
- **Mahatma Gandhi — Means and Ends:** Electoral success cannot justify unethical methods, as legitimate ends must be pursued through ethical means.
- **Care Ethics:** Political actors and caregivers should recognise children's vulnerability and uphold their welfare through responsible and compassionate conduct.
- **Rights-Based Ethics:** Children's freedom of expression must be balanced with their rights to privacy, dignity, protection from exploitation and consideration of their best interests.

Way Forward

- **Enact precise safeguards:** Consider narrowly defined rules against scripting or coercively involving children in political persuasion, without criminalising their independent political expression.
- **Protect child agency:** Ensure children's participation is voluntary, age-appropriate and based on their own views rather than predetermined campaign messages.
- **Establish digital safeguards:** Develop consent protocols for campaign videos featuring minors, including protections against exploitative publicity and unnecessary long-term exposure.
- **Promote electoral awareness:** Encourage schools and families to teach political literacy, policy evaluation and independent reasoning rather than personality-driven voting.
- **Clarify electoral accountability:** Establish clear standards for distinguishing permissible political communication from undue influence, with appropriate evidence requirements and proportionate remedies.

Conclusion: Democratic citizenship must be cultivated through education and free expression, not manufactured through emotional leverage; the ethical test of political leadership is not merely whether it can mobilise children, but whether it respects them as independent rights-holders.

Relevant Quotes

"The best way to find yourself is to lose yourself in the service of others." — Mahatma Gandhi

"The greatest gifts you can give your children are the roots of responsibility and the wings of independence." — Denis Waitley

2. ANSWERABILITY OF PUBLIC OFFICIALS

Context: Allegations of bias against the Chief Election Commissioner have reignited concerns over institutional neutrality and accountability. The issue underscores public officials' duty to uphold constitutional values and serve the public interest above political considerations.

Mahatma Gandhi: Public Office as Trusteeship

- **Talisman of the weakest:** Gandhi advised officials to recall the poorest and weakest person they had encountered and assess whether their decisions would benefit that person, restore their control over life and improve their circumstances.

- **Trusteeship:** Public office, power and public funds should be treated as trusts held for the people, particularly the poor, rather than as instruments of personal privilege.
- **Application to electoral administration:** While revising electoral rolls, officials must consider vulnerable citizens, such as women lacking school-leaving certificates who rely on Aadhaar and other available documents, to ensure that eligible voters are not unfairly excluded.

Lal Bahadur Shastri: Merit over Privilege

- **Against recommendation-based administration:** Shastri recognised that personal recommendations could influence public administration and observed that senior civil servants often followed rules mechanically instead of thinking ahead or innovating.
- **Equal access to public services:** Government services should be based on eligibility and legitimate procedures, not proximity to political leaders, personal connections or VIP status.
- **Ethical lesson:** Civil servants must exercise independent judgement and initiative rather than merely quote rules, ensuring that administrative decisions remain citizen-centric and fair.

Sardar Vallabhbhai Patel: Integrity and Courage

- **Freedom of professional opinion:** Patel believed civil servants should express honest professional opinions even when these differ from the views of their political superiors.
- **Illustration from his tenure:** When his law secretary, Shayak Ali, hesitated to present a legal opinion that might contradict Patel's views, Patel reportedly questioned whether the government paid officials for dishonest opinions and stressed that accepting or rejecting an honest opinion was the government's prerogative.
- **Integrity under pressure:** V. Shankar, an Indian Civil Service officer who served as Patel's private secretary, recalled Patel's intervention at the shrine of Nizamuddin Auliya in Delhi after Partition-related tensions. Patel warned the police that they would be dismissed if further trouble occurred, illustrating his insistence on protecting minorities and upholding law and order.
- **Ethical lesson:** Civil servants must demonstrate moral courage, professional independence, prompt action and commitment to the rule of law, even under political or social pressure.

Deen Dayal Upadhyaya: Antyodaya and Public Welfare

- **Antyodaya:** Meaning the upliftment of the last person, it places the welfare of the most disadvantaged at the centre of public policy.
- **Ethical administration:** Officials should assess decisions by their impact on the weakest sections, strengthen local institutions and treat public service as a moral responsibility (dharma), rather than merely a career.
- **Political neutrality:** Civil servants must remain morally independent of political parties and bureaucratic factions, ensuring that administrative decisions serve the public interest.



Ethical Challenges Facing Civil Servants

- **Political interference:** Officials may face pressure to alter electoral rolls, favour influential individuals or suppress inconvenient professional opinions.
- **Rule-bound versus ethical administration:** Mechanical compliance with rules without examining their consequences can produce injustice; civil servants need both legal competence and ethical judgement.
- **Institutional erosion:** Electoral exclusion, corruption and adulteration of food and medicines weaken public trust and demonstrate the consequences of failing to uphold integrity.
- **Public trust deficit:** Citizens lose confidence when administrative decisions appear arbitrary, discriminatory or driven by privilege rather than fairness and accountability.

Way Forward

- **Adopt citizen-centric decision-making:** Evaluate policies and administrative actions through their impact on the poorest and most vulnerable.
- **Protect professional independence:** Encourage evidence-based advice, honest disagreement and reasoned decision-making without fear of retaliation.
- **Strengthen ethical accountability:** Enforce transparent procedures, impartial service delivery and responsibility for administrative misconduct.
- **Promote constitutional morality:** Ensure that legality is accompanied by justice, equality, dignity and protection of minorities.
- **Build institutional trust:** Strengthen local institutions, prevent arbitrary exclusion from public services and ensure equal treatment irrespective of social or political connections.

Conclusion: Public office is a trust, not a privilege. Guided by constitutional morality, integrity and Antyodaya, civil servants must ensure that power serves the last person and public interest above political considerations.



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