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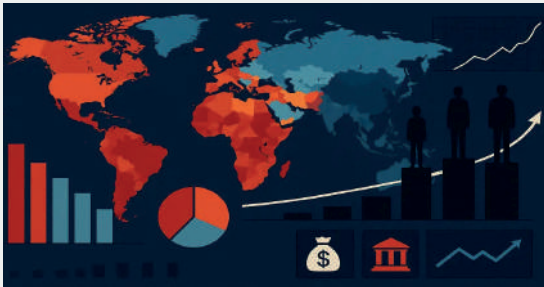
UPSC CSE
IAS Exam

2026

Monthly Magazine



**Most Important
Current Affairs
Topics for CSE
Mains 2026**



**Topics Based on
Syllabus and
Previous Year
Questions**



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PREFACE

Dear Students,

Understanding and organizing Civil Services Exam relevant Current affairs in a crisp and concise manner is essential for success in the Civil Services exam. Our exclusive CSE Mains current affairs magazine will fulfil that need in your preparation.

Features

- Crisp, Clear and insightful analysis on key Current Affairs issues.
- Important issues segregated according to CSE Main Exam syllabus.
- Content written in question and answer format for clarity, easy recollection and coherence while writing the main examination.
- Exam relevant topics curated from The Hindu and Indian Express.

All the best

R.C.Reddy IAS Study Circle

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GS I - INDIAN HERITAGE AND CULTURE, HISTORY AND GEOGRAPHY OF THE WORLD AND SOCIETY

A. INDIAN CULTURE

I. Art Forms, Literature and Architecture

1. Deepavali Added to UNESCO's Intangible Cultural Heritage List

Why in the news?

Deepavali, the Festival of Lights, has been inscribed on UNESCO's (United Nations Educational, Scientific and Cultural Organization) *Representative List of the Intangible Cultural Heritage (ICH) of Humanity* during the 20th Intergovernmental Committee (IGC) session held at New Delhi's Red Fort in December 2025.

Understanding UNESCO's Intangible Cultural Heritage Framework

- UNESCO adopted the **2003 Convention for the Safeguarding of the Intangible Cultural Heritage** to protect living traditions threatened by globalization and socio-economic change.
 - Intangible heritage includes festivals, rituals, oral traditions, performing arts, social practices, and traditional knowledge systems.
 - States Parties can nominate **one element every two years**, following a rigorous evaluation of community participation, continuity, and safeguarding measures.
 - India nominated **Deepavali for the 2024 - 25 cycle**, highlighting its pan-Indian presence and transnational relevance.

Complete List of Indian ICH Elements

- **Kutiyattam** - Sanskrit theatre tradition of Kerala (2008)
- **Ramlila** - Traditional performance of the Ramayana (2008)
- **Ramman** - Religious festival and ritual theatre of Garhwal Himalayas (2009)
- **Mudiyettu** - Ritual theatre and dance drama of Kerala (2010)
- **Kalbelia Folk Songs and Dances of Rajasthan** (2010)
- **Chhau Dance** - Eastern India martial dance tradition (2010)
- **Buddhist Chanting of Ladakh** (2012)
- **Sankirtana** - Ritual singing and drumming of Manipur (2013)
- **Traditional Brass and Copper Craft of Thatheras of Jandiala Guru, Punjab** (2014)
- **Yoga** (2016)
- **Nawruz** - Persian New Year (Multinational inscription, India included) (2016)
- **Kumbh Mela** (2017)
- **Durga Puja in Kolkata** (2021)
- **Garba of Gujarat** (2023)
- **Traditional knowledge of making and consuming Sharbats** (Multinational, India included) (2024)

About Deepavali

- Deepavali, also known as Diwali, is celebrated on **Kartik Amaavasya**, which typically falls in October or November.
 - Residences, thoroughfares, and temples are **illuminated with numerous oil lamps**.
- The festival opens with **Dhanteras**, when families purchase metalware or essentials as symbols of prosperity.

- It is followed by **Naraka Chaturdashi**.
- **The third day** is the highlight of Deepavali- the **sacred Lakshmi-Ganesha Puja**.

Why Deepavali Qualifies as Intangible Cultural Heritage

- **Living tradition:** Deepavali is continuously recreated by communities across generations, adapting to local contexts while retaining core values.
- **Social cohesion:** The festival promotes family bonding, community participation, charity, and reconciliation.
- **Cultural plurality:** Celebrated across regions, religions, and the Indian diaspora, Deepavali reflects India's cultural diversity and inclusiveness.
- **Symbolic universality:** The central theme-victory of light over darkness and good over evil-resonates with universal human values.

Implications of the Inscription

- **Cultural diplomacy:** Enhances India's soft power and cultural presence on the global stage.
- **Safeguarding responsibility:** Places an obligation on India to ensure documentation, transmission, and protection of associated practices.
- **Community empowerment:** Reinforces the role of local communities as custodians of heritage rather than passive recipients of recognition.
- **Intergenerational continuity:** Encourages sustained transmission of values, rituals, and knowledge systems to future generations.

B. MODERN INDIAN HISTORY

I. The Freedom Struggle

1. History of Vande Mataram

Why in the news?

- 150 years of Vande Mataram

Origins and Historical Context of Vande Mataram

- **Composition and Literary Background:** Vande Mataram was composed in **1875** in Sanskritised Bengali by **Bankim Chandra Chattopadhyay**. First published in **1882** as part of the novel *Anandamath*.
- **Inspirations from Anti-Colonial Movements:** The novel drew inspiration from the **Sannyasi Rebellion (18th century)** and the **1857 Revolt**.
- **Adoption by the National Movement:** The Indian National Congress adopted the song in **1905** during the Swadeshi Movement.

Vande Mataram and Its National Status

- **National Song vs National Anthem:** Vande Mataram is honoured as the **National Song**, while *Jana Gana Mana* is the **National Anthem**. Clarified during the **Constituent Assembly debates (1950)**.
- **Constituent Assembly Resolution:** President **Rajendra Prasad** declared equal honour for both. Vande Mataram to have "equal status" but not identical constitutional privileges.
- **Constitutional Position:** The National Anthem enjoys explicit legal protection under **Article 51A(a)** and the **Prevention of Insults to National Honour Act, 1971**, which does not extend to Vande Mataram. No mandatory obligation to sing the National Song.

Significance for Nation-Building

- **Symbol of Anti-Colonial Unity:** Played a historic role in mobilising masses across regions.
- **Accommodation of Diversity:** India's approach balanced national pride with religious pluralism.
- **Democratic Negotiation of Identity:** Vande Mataram's journey illustrates consensus-building.

Conclusion

Vande Mataram occupies a **unique place in India's national consciousness**, embodying both the emotional fervour of the freedom struggle and the ethical commitment to pluralism.

C. INDIAN SOCIETY

I. Salient features of Indian Society, Diversity of India

1. Live-in relationships part of right to life, not illegal: HC

Why in the news?

- The Allahabad High Court has ruled that live-in relationships, although not universally accepted, are not illegal and do not constitute an offence.



Observations of the HC

- The court highlighted the precedence of the right to human life over marital status and directed authorities to ensure the safety of adult live-in couples.
- Police were instructed to provide immediate protection upon verifying the individuals' age and voluntary cohabitation.
- **Non-judgment of Personal Choices:** The court affirmed that a lack of formal marriage does not negate citizens' fundamental rights.
- **State's duty to protect:** Once adults choose to live together, the State is duty-bound to ensure their safety, even against threats from family or society.
- **Social Morality vs Constitutional Morality:** The Court clearly prioritised constitutional morality over social morality.

Key Supreme Court Judgments on Live-in Relationships

- **Tulsa v. Durghatiya (2008):** Children born from prolonged live-in relationships cannot be treated as illegitimate.
- **D. Velusamy v. D. Patchaiammal (2010):** The Court clarified the concept of "relationship in the nature of marriage" under the Domestic Violence Act.
- **Indra Sarma v. V.K.V. Sarma (2013):** Recognised that live-in relationships may be morally debated, but courts must deal with social realities.
- **Shafin Jahan v. Asokan K.M. (2018):** The Court held that the right to marry a person of one's choice is an integral part of Article 21.

2. Child Marriage in India

Why in the news?

- The Union government recently marked the first anniversary of the **Bal Vivah Mukht Bharat Abhiyan** with a 100-day nationwide awareness campaign, reaffirming India's commitment to the **United Nations (UN)** goal of ending child marriage by 2030.

Child Marriage and the SDG Framework

- **SDG 5: Gender Equality:** The **fifth Sustainable Development Goal (SDG 5)** aims to achieve gender equality and empower all women and girls. Within this, **Target 5.3** specifically calls for the elimination of all harmful practices, including child marriage, early and forced marriage, and female genital mutilation.
- **Measurement of progress:** Progress on child marriage is tracked through the indicator measuring the **proportion of women aged 20 - 24 years who were married before the age of 18**. This indicator reflects both historical trends and the effectiveness of interventions aimed at delaying marriage.

Scale of the Challenge

- **Global and Indian burden:** According to **UNICEF (2023)**, around **640 million girls worldwide** were married in childhood, with **India accounting for nearly one-third** of this global burden.
- **Pace of progress:** UNICEF has warned that progress must accelerate **20 times faster** than the current rate if the 2030 target is to be achieved.

Steps Taken by the Government of India to Prevent Child Marriage

- **Prohibition of Child Marriage Act (PCMA), 2006:** Replaced the Child Marriage Restraint Act, 1929.
 - Declares child marriage **voidable** at the option of the minor
 - Prescribes **punishment** for offenders including parents, guardians, and priests
 - Provides for **Child Marriage Prohibition Officers (CMPOs)**

- **Recent Legal Developments:** Proposals to raise the **minimum age of marriage for women to 21 years** to ensure gender parity and better health outcomes
- **Bal Vivah Mukht Bharat Abhiyan:** Includes **100-day awareness campaigns**, community mobilisation, and behavioural change communication Focus on vulnerable districts with high prevalence.
- **Beti Bachao Beti Padhao (BBBP):** Addresses gender bias, promotes girl child education.
- **Mission Shakti:** Umbrella scheme for women's safety, protection, and empowerment.
- **Kasturba Gandhi Balika Vidyalayas (KGBVs):** Residential schools for girls from SC, ST, minority, and backward communities

II. Role of Women and Women's Organization, Population and Associated Issues, Poverty and Developmental issues, Urbanization, their problems and their remedies.

1. Assam Prohibition of Polygamy Bill, 2025

Why in the news?

- An anti-polygamy Bill in the Assam State Assembly prescribes imprisonment and heavy fines for people entering into, or hiding, a second marriage while the first continues to be valid.

Key Provisions of the Bill

- Polygamy is made a criminal offence **punishable with up to 7 years' imprisonment and fine**.
- If a person contracts a second marriage by concealing an existing valid marriage, punishment **may extend to 10 years' imprisonment**.
- Repeat offenders face double punishment.
- **Extended Liability to Facilitators:** Liability extends to **village heads, qazis, priests, parents, and legal guardians** who knowingly facilitate or conceal polygamous marriages.
- **Extra-Territorial Application:** Covers Assam residents entering polygamous marriages **outside the State**.
 - Also applies to non-residents owning immovable property in Assam or receiving **State-funded benefits**.
- **Civil Disabilities and Disqualifications:** Convicted persons become **ineligible for government jobs, welfare schemes, and election contests**.
- **Protection and Compensation for Women:** Provides a **mechanism for compensation** to women affected by polygamous marriages.
- **Prospective Operation:** Polygamous marriages contracted **before enforcement** are protected if valid under existing personal or customary laws.

Constitutional and Legal Dimensions

- **Personal Laws vs State Authority:** Marriage falls under **Concurrent List (Entry 5)**, allowing States to legislate.
 - However, Muslim personal law permits limited polygamy, raising questions on **Article 25 (Freedom of Religion)**.
- **Gender Justice and Article 14:** The Bill aligns with **Article 14 (Equality before Law)** and **Article 15 (Non-discrimination)** by addressing gender-based hardship.
 - **Example:** Courts have repeatedly recognised polygamy as detrimental to women's dignity.
- **Exemptions under Sixth Schedule and Article 342:** Scheduled Tribes and Sixth Schedule areas are excluded, respecting **customary autonomy**.
 - **Example:** Certain tribal customs in Assam permit multiple marriages.
- **Preventive Policing Powers:** Police empowered to **intervene before a prohibited marriage takes place**, raising due process concerns.
 - **Example:** Preventive action must comply with safeguards against arbitrary state action.

Social and Governance Implications

- **Women's Rights and Social Reform:** Addresses economic neglect, emotional distress, and social insecurity faced by women.
- **Deterrence through Criminal Sanctions:** Strong penalties aim to act as a **deterrent**, but may also drive practices underground.
- **Administrative and Enforcement Challenges:** Proof of concealment, coordination across States, and misuse risks need attention.

Way Forward

- Ensure **procedural safeguards** to prevent misuse and protect civil liberties.
- Complement criminal law with **awareness campaigns and legal literacy**.
- Strengthen **women-centric civil remedies** such as maintenance, residence rights, and fast-track courts.
- Encourage **broader national debate** on uniform standards while respecting cultural diversity.

2. Intimate Partner Violence (IPV) as a Public Health Crisis

Why in the news?

- Intimate Partner Violence (IPV) is increasingly recognised as a major but under-acknowledged public health challenge.

IPV and the Burden of Disease

- **Chronic Health Impact:** IPV is not a single episodic event but a continuous exposure that accumulates over years, leading to long-term disability.
- **Wide Spectrum of Illness:** It is associated with post-traumatic stress disorder (PTSD), depression, anxiety, suicide risk, chronic pain, cardiovascular disease, gastrointestinal disorders, sexually transmitted infections, and adverse reproductive outcomes.
- **Global Evidence Base:** Analysis drawing on the Global Burden of Disease Study 2023 identifies IPV as a significant contributor to disability-adjusted life years (DALYs) among women of reproductive age in South Asia.

Why IPV Remains Invisible in Healthcare

- **Non-specific Symptoms:** Women affected by IPV often present repeatedly with symptoms such as fatigue, insomnia, chronic pain, palpitations, or anxiety, which are treated symptomatically without addressing root causes.
- **Gaps in Medical Training:** Medical education largely confines domestic violence to forensic medicine, focusing on legal evidence rather than routine clinical recognition.
- **Clinical Constraints:** Doctors often lack training in trauma-informed care, safe questioning, documentation, and referral pathways, especially when women are accompanied by family members.
- **Systemic Fragmentation:** IPV lies at the intersection of healthcare, social welfare, and law enforcement, leading to weak coordination and care pathways.

Public Health Reframing of IPV

- **From Social Issue to Health Risk:** Viewing IPV as a risk factor akin to hypertension or diabetes enables earlier detection and preventive intervention.
- **Chronic Disease Lens:** This reframing highlights how untreated violence fuels non-communicable diseases and mental health disorders, burdening health systems in the long run.
- **Equity and Gender Lens:** Low female labour force participation and economic dependence further compound health vulnerabilities linked to IPV.

Way Forward

- **Curriculum Integration:** Gender-based violence must be integrated across clinical subjects in medical, nursing, and allied health education, not limited to a single lecture.
- **Trauma-Informed Care:** Health systems should institutionalise confidential screening, counselling, and referral mechanisms within primary and secondary care.
- **Inter-sectoral Coordination:** Stronger linkages between healthcare providers, mental health services, social support systems, and legal aid are essential.
- **Public Health Surveillance:** IPV should be systematically captured in health data systems to inform policy, resource allocation, and prevention strategies.

D. GEOGRAPHY**I. Salient features of World's Physical Geography.****1. Grassland****Why in the news?**

- Emerging ecological evidence demonstrates that **healthy grassland soils, rather than tree plantations, are central to India's climate resilience**, carbon sequestration and rural livelihoods, particularly in dryland regions.

Colonial Legacy and Policy Blindness

- **Colonial Perception of Grasslands as Wastelands:** British forestry prioritised timber-rich forests while undervaluing grassy biomes. Savannahs and grasslands were seen as unproductive for industrial needs.
- **Post-Independence Continuation:** Independent India retained colonial classifications. Creation of the **National Wastelands Development Board (1985)**, which grouped grasslands, grazing lands and scrublands as wastelands.
- **Consequences of Misclassification:** Policies encouraged afforestation and diversion instead of conservation. Tree planting in ecosystems naturally adapted to open, grassy landscapes.

Ecological and Economic Importance of Grasslands

- **Livelihood Support for Pastoral Communities:** Grasslands sustain millions of pastoralists.
- Maharashtra's livestock economy valued at **₹59,000 crore (2018 - 19)**.
- **Biodiversity Hotspots:** Grasslands host specialised flora and fauna adapted to open ecosystems. Savannah birds, insects and native grass species.
- **Fire-Adapted and Climate-Resilient Systems:** Grasslands recover faster from fires than forests. Below-ground biomass remains largely intact after fires.

Evidence from Restoration Initiatives**Malshiras Grassland, Maharashtra**

- **CAMPA-Funded Grassland Restoration:** Forest department restored degraded grasslands using native grasses.

Banni Grassland, Gujarat

- **Once Asia's Largest Tropical Grassland:** Degraded due to invasive **Prosopis juliflora** plantation policies.
- **Community-Led Restoration (Wada System):** Maldhari pastoralists removed invasive species and restored native grasses.
- **Global Significance:** Places Banni among the most carbon-rich arid ecosystems worldwide.

Why Grassland Soils Matter More Than Trees

- **Below-Ground Carbon Dominance:** Unlike forests, grasslands store most of their biomass underground. Dense fibrous root systems deposit stable carbon into soils.
- **Long-Term Soil Organic Carbon (SOC) Storage:** Grassland roots continuously enrich soils with organic matter. SOC can persist for centuries, protected from surface disturbances.
- **Hydrological and Soil Benefits:** Roots improve water infiltration and reduce erosion. Enhanced drought buffering in semi-arid regions.
- **Microbial and Nutrient Cycling Support:** Grassland soils host diverse microbial communities.

Way Forward for India's Climate Policy

- **Reclassify Grasslands in Land Records:** Remove "wasteland" label. Separate grassland category in land-use planning.
- **Grassland-Specific Restoration Policies:** Promote native grasses over tree plantations. Expand CAMPA usage for grassland restoration.
- **Community-Centred Governance:** Empower pastoralists as ecosystem managers.
- **Integrate Grasslands into Climate Commitments:** Recognise SOC in NDCs and carbon accounting.

II. Key Natural Resources

1. Self-reliant in Rare earth elements (REEs)

Why in the news?

- India's approval of a **₹7,280-crore scheme for domestic rare earth permanent magnet (REPM) manufacturing**, along with the launch of the **National Critical Mineral Mission**, marks a decisive attempt to achieve strategic self-reliance.

China's Dominance and Geopolitical Use of REEs

- **Scale of control despite limited reserves:** China controls **about 90% of global REE processing** and nearly **70% of production**, although it holds only **around 30% of global reserves**.
- **Weaponisation of supply chains:** China has repeatedly used REEs as a geopolitical tool to influence global trade and strategic outcomes.
 - Export quotas imposed in **2009** and restrictions on **graphite (2020)** and REEs and magnets in **2024 - 25** disrupted automobile and EV supply chains worldwide.
- **Strategic signalling through export controls:** By selectively restricting exports to specific industries, China signals its leverage in critical technologies.

Why REEs Matter for India?

- **Central to India's growth ambitions:** India's push for **electric vehicles, renewable energy, electronics manufacturing, and defence indigenisation** depends heavily on rare earth magnets.
- **Resource-rich but production-poor paradox:** India possesses **about 8% of global REE reserves**, primarily in **monazite sands** along the coasts of Andhra Pradesh, Odisha, Tamil Nadu, and Kerala, yet contributes **less than 1% of global output**.
 - India imported over **53,000 metric tonnes of REE magnets in FY 2024 - 25**, highlighting import dependence.
- **Energy transition and climate commitments:** REEs are indispensable for India's commitment to **Net Zero by 2070** and its interim renewable energy targets.

- **Neodymium and Dysprosium** are critical for high-efficiency wind turbine generators, which are central to India's 500 GW non-fossil energy target.
- **Strategic autonomy in defence manufacturing: Samarium - cobalt magnets** are used in missile systems and fighter aircraft avionics under *Atmanirbhar Bharat (Defence)*.
- **Resilience of critical infrastructure: Rare-earth-based phosphors** are used in optical communication and satellite imaging systems.
- **Space and advanced research applications:** ISRO missions and space-grade electronics require REEs for **radiation-resistant components and propulsion systems**.
- **Critical role in emerging technologies:** REEs are foundational for **AI hardware, quantum computing, robotics, and advanced sensors**.
- **Geopolitical leverage and global standing:** Countries controlling REE supply chains shape global industrial rules and alliances.
 - **Example:** India's REE capacity strengthens its role within **Quad and Indo-Pacific supply chain resilience initiatives**.

Government Initiatives for Self-Reliance

- **Integrated REPM manufacturing push:** The ₹7,280-crore scheme aims to build **end-to-end capacity** - from rare earth oxides to finished magnets.
- **National Critical Mineral Mission (NCMM):** Launched with an outlay of **₹34,300 crore over seven years**, the mission focuses on exploration, processing, and recycling of critical minerals.
- **Private sector participation**
 - The sector was opened to private players in **August 2023**, and new mining blocks are being auctioned.

Challenges to Achieving Self-Reliance

- **Regulatory and institutional bottlenecks:** Complex environmental clearances and government control slow project execution.
 - Only a handful of exploration licences have been issued so far.
- **Lack of refining and processing infrastructure:** India has limited capacity in **separation, alloying, and magnet manufacturing**, the most value-intensive stages.
 - China's advantage lies not in mining but in downstream processing.
- **Human capital and innovation gaps:** Advanced metallurgy and material science skills are scarce domestically.
 - Long gestation periods make rapid scaling difficult.

Conclusion

For India, **REEs are not merely industrial inputs but strategic assets** shaping energy security, defence readiness, technological independence, and geopolitical leverage. Control over REEs determines whether India remains a **technology consumer** or evolves into a **technology producer**. Therefore, building domestic REE capability is not optional - it is central to India's vision of **Atmanirbhar Bharat in a multipolar world**.

2. Offshore Block Mining

Why in the news?

- The Union government's proposal to auction offshore mineral blocks for private mining has triggered political and social concerns, particularly from coastal communities in Kerala.

What is Offshore Mining?

- **Offshore mining** refers to the exploration and extraction of mineral resources located beneath the seabed, within a country's **territorial waters, continental shelf, and Exclusive Economic Zone (EEZ)**.
- India, with a coastline of over **7,500 km** and an EEZ of about **2.37 million sq km**, has significant offshore mineral potential.

Importance of Offshore Mining for India

- **Resource security:** Reduces dependence on imports for critical minerals used in infrastructure, renewable energy, and electronics.
- **Economic growth:** Supports construction, manufacturing, and emerging sectors like electric mobility.
- **Strategic relevance:** Polymetallic nodules contain nickel, cobalt, and manganese, crucial for batteries and clean energy transition.
- **Blue economy goals:** Offshore resources are part of India's broader Blue Economy vision.

Legal and Institutional Framework in India

- **Offshore Areas Mineral (Development and Regulation) Act, 2002:** Governs exploration and extraction of offshore minerals.
- **Offshore Areas Mineral Conservation and Development Rules, 2024:**
 - Mandate approved **production plans**
 - Require **Environmental Management Plans (EMP)** with impact assessment and mitigation measures
- **Offshore Areas Mineral Trust (OAMT):**
 - Includes coastal States in governance
 - Funds research, monitoring, and ecological mitigation

Environmental and Social Concerns

- **Marine ecosystem damage:** Seabed disturbance can destroy benthic habitats and affect coral reefs and marine biodiversity.
- **Fisheries impact:** Sediment plumes and habitat loss can reduce fish stocks, affecting coastal livelihoods.
- **Cumulative impacts:** Long-term ecological effects remain scientifically uncertain, especially for deep-sea mining.
- **Community opposition:** Fishing communities fear loss of livelihoods and food security, as seen in protests along the Kerala coast.

3. Aravalli Hills Mining Controversy

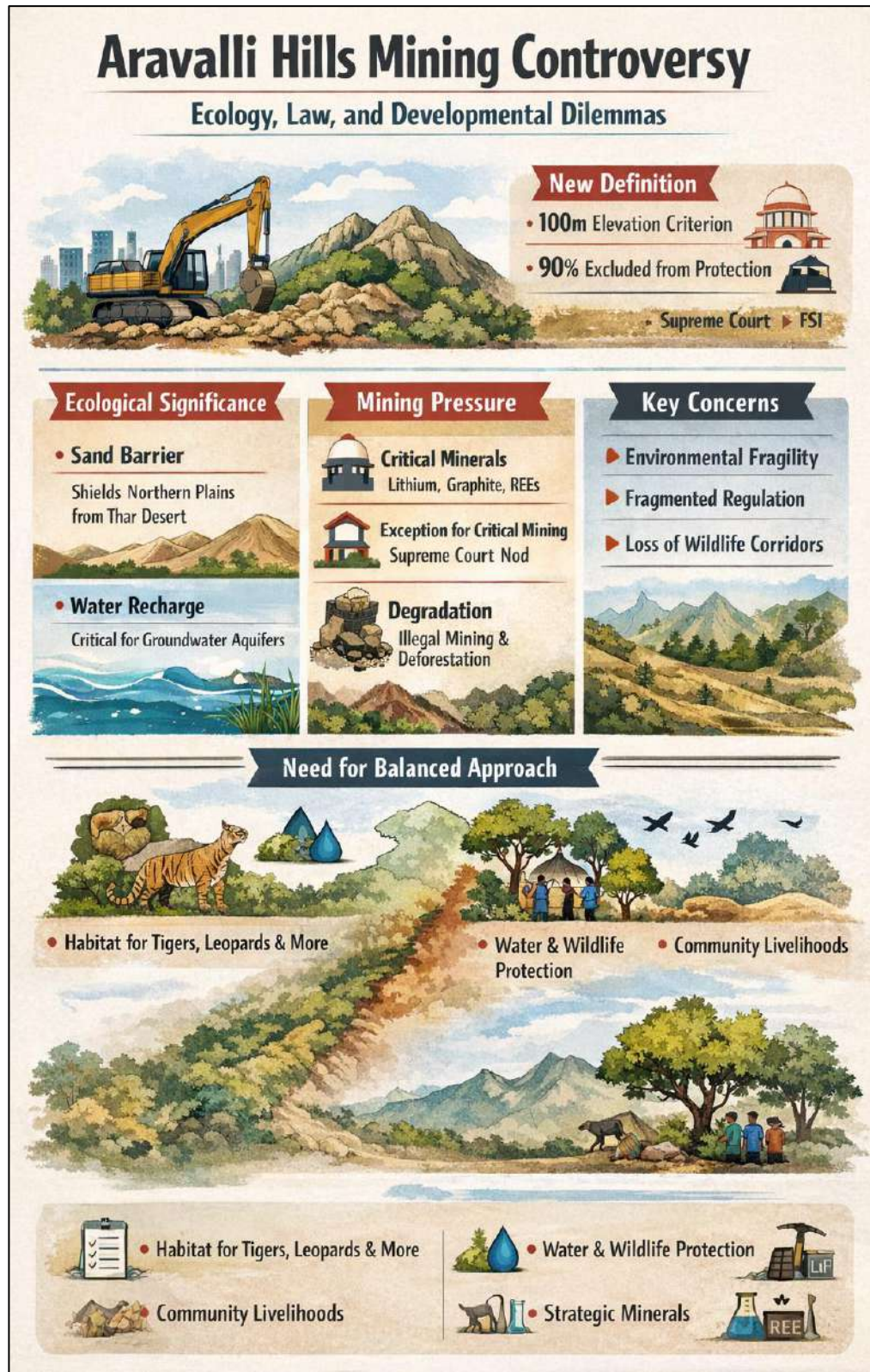
Why in the news?

- The recent controversy surrounding the **redefinition of the Aravalli Hills** has reignited concerns about the balance between environmental protection and developmental priorities in India.

The New Definition and Its Implications

- Under the revised definition, the **Aravallis are identified as landforms rising 100 metres or more above local relief**.
 - According to an internal assessment by the **Forest Survey of India (FSI)**, this technical criterion effectively excludes **nearly 90% of the Aravalli landscape** from protections that previously restricted mining and construction.
- Critics argue that such a narrow geomorphological definition undermines decades of ecological understanding of the Aravallis as a **continuous and interconnected hill system**, not merely isolated elevations.

- While the Centre has clarified that the definition is meant specifically for mining regulation, concerns persist about its spillover effects on land use planning, real estate development, and environmental clearances.
- Recognising the sensitivities involved, the Union government has directed States to **halt new mining leases in the Aravallis** until a **management plan for sustainable mining** is finalised, in compliance with Supreme Court directions.



Ecological Significance of the Aravallis

- **A Natural Shield Against Desertification:** The Aravalli range, over a **billion years old**, stretches nearly **700 km across Gujarat, Rajasthan, Haryana, and Delhi**.
 - Despite heavy erosion, it continues to act as an **ecological barrier**, preventing the eastward spread of sands from the **Thar Desert**.
 - Any weakening of this barrier could aggravate **dust storms and air pollution**, especially in the **Delhi-NCR** region.
- **Water Recharge and Hydrological Role:** Often overlooked, the Aravallis play a crucial role in **groundwater recharge**.
 - Their fractured and porous rock formations allow rainwater to percolate deep underground, sustaining aquifers and seasonal rivers.
 - The range forms a major **watershed**, separating drainage towards the **Bay of Bengal** (via the Chambal - Yamuna system) and the **Arabian Sea** (via rivers such as Luni, Sabarmati, and Mahi).
 - Lakes and wetlands like **Sambhar, Pushkar, Sultanpur, Fateh Sagar, and Jaisamand** are closely linked to this hydrology.
- **Biodiversity and Wildlife Corridors:** The Aravallis host a unique **semi-arid and dry deciduous ecosystem**, supporting **22 wildlife sanctuaries**, including major tiger reserves such as **Ranthambore, Sariska, and Mukundra**.
 - Species ranging from tigers and leopards to blackbuck, hyena, and gharial depend on these landscapes.
 - Fragmentation through mining or construction, especially in smaller hillocks, risks **shrinking wildlife corridors** and accelerating biodiversity loss.

Mining Pressure and Developmental Challenges

- The Aravallis are rich in **metals and minerals**, including **lead, zinc, copper, gold**, and several **critical minerals** such as lithium, graphite, nickel, and rare earth elements (REEs). These are strategically important for **energy transition, high-technology manufacturing, and national security**.
- India's push to secure critical minerals has led the Supreme Court to allow **exceptions for critical mineral mining**, even as it places restrictions on other mining activities. This creates a complex policy challenge: how to reconcile **strategic mineral extraction** with **ecological fragility** in a region already degraded by **urbanisation, illegal mining, industrial clusters, and deforestation**.
- The Union government's own **Aravalli Green Wall Action Plan** acknowledges extensive degradation, including damaged aquifers, dried-up lakes, and increased desertification. Any further dilution of protections could intensify these trends.

Governance Concerns and the Need for Safeguards: The controversy highlights deeper governance issues:

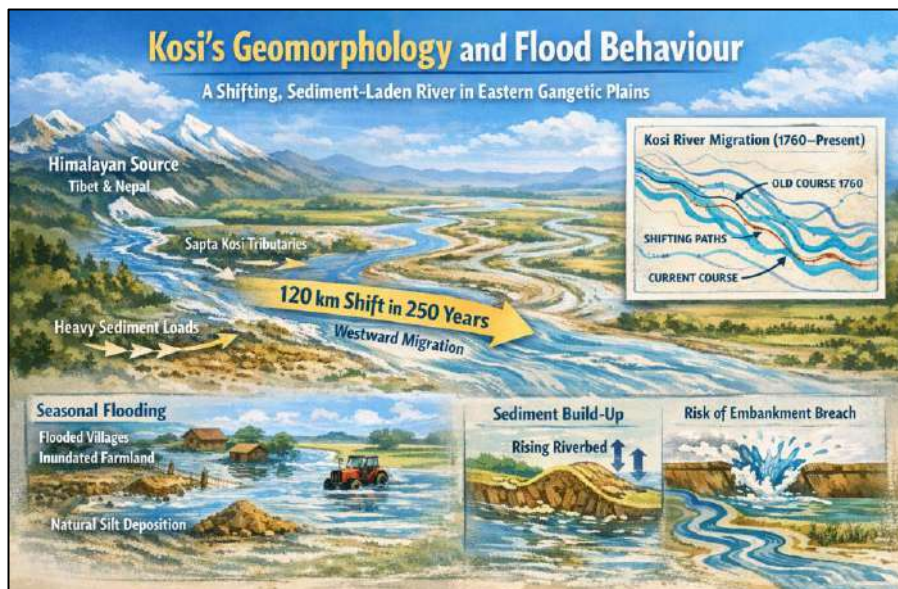
- **Fragmented legal definitions** that fail to capture ecological continuity
- Weak enforcement against **illegal mining**
- Tensions between **environmental federalism** and centralised decision-making
- Lack of comprehensive **landscape-level planning**

Conclusion

The Aravalli Hills are not merely repositories of minerals; they are a **lifeline for water security, biodiversity, climate moderation, and livelihoods** in a densely populated and environmentally stressed region.

III. Important Geophysical Phenomena

1. River Kosi Shifting Course



Why in the news?

- The **Kosi River**, often called the “*river of sorrow*”, epitomises the complex challenges of flood management in India’s eastern Gangetic plains.

Kosi’s Geomorphology and Flood Behaviour

- Sediment-heavy Himalayan River:** Originating in **Tibet and Nepal** and fed by seven tributaries (*Sapta Kosi*), the river carries enormous sediment loads from the young, fragile Himalayas.
 - The People’s Commission on the Kosi Basin notes a **120 km westward shift in 250 years**.
- Natural channel migration:** Seasonal flooding and lateral movement historically allowed the river to **deposit fertile silt** and drain its basin naturally.
- Economic Cost:** Flood waters of **6 lakh cusecs** dwarf diversions like the **Kosi - Mechi project’s 5,247 cusecs**.
- Ecological degradation:** Embankments disrupt **groundwater recharge, biodiversity, and sediment dispersal**.

Lessons from Assam and Other Himalayan Rivers

- Eastern Himalayan vulnerability:** Rivers like the **Kosi and Brahmaputra** are geologically unstable and sediment-rich, making embankments fragile.
 - Assam’s embankments led to sand deposition, reduced navigation depth, and chronic breach anxiety.
- West vs East Himalayan contrast:** Western Himalayan rivers are **influent** (declining rainfall downstream), while eastern rivers are **affluent** (increasing rainfall).
 - Embankments are relatively more viable in western systems than in eastern ones.

Way Forward

- Revival of paleochannels:** Restoring abandoned river channels can redistribute excess water naturally.
- Flood-resilience over flood-control:** Experts argue for shifting from absolute control to **managed flooding**.
 - The **U.S. has dismantled embankments** to restore floodplains and reduce disaster risk.
- Early warning and planned rehabilitation:** Communities inside embankments need **reliable alerts, evacuation routes, and resettlement support**.
- Shift policy discourse from **flood control to flood resilience**
- Strengthen cross-border river cooperation (India - Nepal)

GS 2 - GOVERNANCE, CONSTITUTION, POLITY, SOCIAL JUSTICE AND INTERNATIONAL RELATIONS

A. POLITY

I. Parliament and State legislatures

1. Union Law Ministry Defends Simultaneous Polls Proposal

Why in the news?

- The Union Law Ministry, in a written submission to the Joint Parliamentary Committee (JPC) examining the Bills on simultaneous elections, said that the proposed framework does not violate the Constitution's basic structure, nor does it infringe upon the federal structure of the Constitution.

Law Ministry Observations

- Five-Year Term Not Absolute:** The Ministry clarified that Articles **83(2)** and **172(1)** of the Constitution prescribe a five-year term for the Lok Sabha and State Assemblies **"unless sooner dissolved."** This phrase reflects the framers' intent to permit premature dissolution under exceptional circumstances.
- Historical Precedent:** The 42nd Constitutional Amendment (1976) extended legislative tenure to six years during the Emergency, which was later reversed by the 44th Amendment. This demonstrates that legislative tenure is not immutable or part of the basic structure.
- No Violation of Kesavananda Bharati Doctrine:** The Ministry argued that the Bills do not dilute core constitutional principles such as separation of powers or federalism. A one-time curtailment of tenure for synchronisation purposes does not amount to structural damage.
- Electoral Rights Remain Intact:** Mid-term elections do not curtail the electorate's power. While Article **326** guarantees universal adult suffrage, the right to vote and contest elections is statutory, not a fundamental right.
- No Expansion of Excessive Powers:** The Election Commission already enjoys constitutional autonomy under Article **324**. Its authority to schedule elections is well-established under Sections **14 and 15** of the Representation of the People Act, 1951.

Rationale Behind Simultaneous Elections

- Reduction in Electoral Expenditure:** Frequent elections impose recurring costs on the exchequer due to repeated deployment of security forces logistics and election machinery. Simultaneous elections reduce cumulative expenditure.
- Governance Continuity:** Repeated enforcement of the Model Code of Conduct disrupts policy decisions and welfare implementation. Synchronised polls minimise such interruptions.
- Administrative Efficiency:** Civil servants security personnel and teachers are repeatedly diverted for election duties. A single election cycle ensures better utilisation of limited administrative resources.
- Policy Stability:** Frequent elections encourage short-term populism. Simultaneous elections promote long-term planning and reform-oriented governance.
- Reduced Voter Fatigue:** Multiple elections within short periods can lower voter engagement. A unified electoral exercise may improve participation.
- End of Permanent Campaign Mode:** Continuous elections keep political actors in campaign mode affecting legislative productivity. Synchronisation allows clearer separation between governance and politics.
- National-Level Focus:** A common electoral cycle can encourage issue-based discourse and governance accountability.

Demerits of Simultaneous Elections

- **Weakening of Federalism:** National issues may overshadow State-specific concerns reducing the autonomy of regional political discourse.
- **Disadvantage to Regional Parties:** National parties with greater resources may gain an edge marginalising smaller regional parties.
- **Coattail Effect:** Voters may vote for the same party at both State and Centre levels limiting independent evaluation.
- **Handling Premature Dissolution:** Mid-term collapse of governments complicates maintenance of a common election cycle.
- **Reduced Electoral Accountability:** Less frequent elections may weaken regular democratic checks on governments.
- **High One-Time Logistical Load:** Simultaneous polls require large-scale deployment of EVMs security forces and personnel.
- **Dilution of Local Issues:** Constituency and local governance issues may receive less attention.

Conclusion

Simultaneous elections aim to enhance efficiency stability and democratic functioning without compromising constitutional principles.

2. Right to Disconnect Bill, 2025

Why in the news?

- A private member bill “**Right to Disconnect Bill, 2025**”, reintroduced in the Lok Sabha.

What is Right to Disconnect?

- The Right to Disconnect refers to an employee’s right to not engage in work-related communications-such as calls, emails, or messages-outside official working hours.
- It aims to protect workers from excessive digital connectivity and ensure a healthy work - life balance.

Key Provisions of the Right to Disconnect Bill, 2025

- **Right to Refuse Work Communication After Hours:** Employees may decline calls or emails outside work hours without penalty.
- **Employees’ Welfare Authority:** Proposed statutory body to enforce the right to disconnect.
- **Data-Driven Policy Design:** Mandatory baseline study on after-hours digital tool usage.
- **Negotiated Work Beyond Hours:** Companies with over 10 workers must negotiate terms for after-hours work.
- **Mental Health and Digital Detox Support:** Counselling services and digital detox centres mandated.
- **Penalty for Non-Compliance:** 1% of employees’ total remuneration as penalty.

Institutional and Political Constraints

- **Limited Success of Private Members’ Bills:** Very few have become law since Independence.
 - Only 14 passed, last in 1970.
- **Employer Concerns:** Fear of reduced flexibility in global and service-driven sectors.
- **Implementation Complexity:** Diverse employment arrangements across sectors.

Significance for Indian Labour Governance

- **Reasserting Dignity of Labour:** Protects workers from digital exploitation.
 - Aligns with constitutional values under Articles 21 and 42.

- **Modernising Labour Laws:** Responds to post-pandemic work realities.
- **Balancing Productivity and Well-being:** Promotes sustainable work culture.

Conclusion

The Right to Disconnect debate reflects a **transition from industrial-era labour protections to digital-age rights**. In an economy increasingly driven by knowledge and services, safeguarding the **right to rest** is not a roadblock to productivity but a prerequisite for sustainable growth.

3. SHANTI Bill

Why in the news?

- The passage of the **Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Bill, 2025** marks a watershed moment in India's nuclear energy policy.

Key Provisions of the Bill

- **Opening Nuclear Operations to Private Entities:** The Bill permits **both public and private sector companies** to establish and operate nuclear power plants.
- **Retention of Sovereign Control over Sensitive Activities:** Despite private participation, the Central Government retains exclusive control over **critical and sensitive nuclear functions**, including:
 - Enrichment and isotopic separation of nuclear materials
 - Reprocessing and management of spent fuel and high-level radioactive waste
 - Production and upgradation of heavy water
- **Mandatory Safety Authorisation:** All entities engaged in nuclear energy activities must obtain **prior safety authorisation** from the **Atomic Energy Regulatory Board (AERB)**. This requirement extends to:
 - Establishment, operation and decommissioning of nuclear facilities
 - Manufacture, possession, transport, import, export and disposal of radioactive substances
 - Operation of radiation-generating equipment
- **Statutory Status to the Nuclear Safety Regulator:** The Bill grants **statutory independence** to the AERB, transforming it from a delegated authority into an autonomous regulator. This addresses long-standing concerns regarding regulatory conflict of interest and strengthens safety oversight.
- **Revised Nuclear Liability Framework:** The Bill restructures liability norms by:
 - Introducing **graded liability caps** based on the size and capacity of nuclear installations
 - Retaining the operator's right of recourse only in cases of contractual agreement or intentional acts causing damage
 - Removing automatic supplier liability for defective equipment or services
- **Dispute Resolution and Claims Mechanisms:** The Bill establishes new institutional mechanisms:
 - **Atomic Energy Redressal Advisory Council** for grievance redress and dispute resolution
 - **Nuclear Damage Claims Commission** to handle cases of severe nuclear damage
 - **Appellate Tribunal for Electricity** designated as the appellate authority for regulatory and penalty-related matters.
- **Introduction of Monetary Penalties:** For the first time, the Bill provides for **monetary penalties** for regulatory violations, alongside imprisonment for serious offences, enabling proportionate enforcement and improved compliance.

Way Forward

- **Clear Regulatory Framework:** Establish a robust regulatory environment to ensure safety, compliance, and transparency, addressing concerns about accountability and national security.

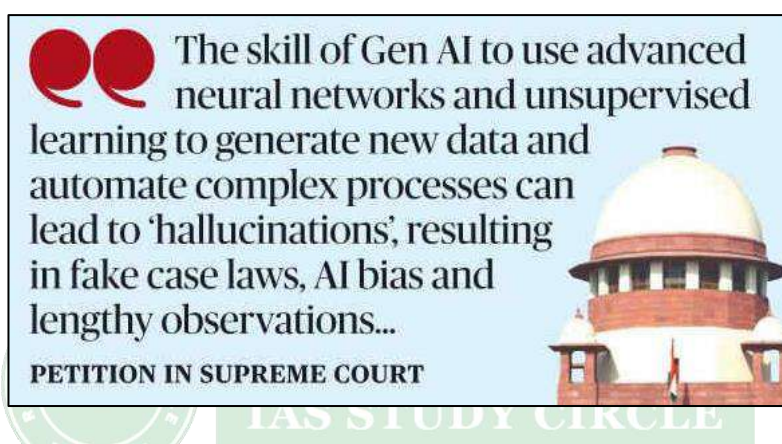
- **Public-Private Partnerships (PPPs):** Promote partnerships where the government maintains oversight, while private players handle operations, innovation, and investment, ensuring a balance of interests.
- **Gradual Implementation:** Start with pilot projects and small-scale initiatives to test private sector involvement, ensuring risk management before large-scale implementation.

II. The Judiciary

1. GenAI in Judicial Work

Why in the news?

- A recent observation by the **Supreme Court of India**, while hearing a petition on the risks of GenAI in judicial work, highlights growing concerns about **algorithmic hallucinations, bias, and erosion of judicial accountability**.



Judicial Concerns Regarding GenAI

- **Risk of AI 'Hallucinations':** GenAI systems may generate fictitious judgments, precedents or legal reasoning.
- **Threat to Precedent-Based Adjudication:** Judicial decision-making in India is anchored in stare decisis. AI-generated content may rely on probabilistic patterns rather than binding precedents.
- **Perpetuation of Bias:** AI systems trained on biased or opaque datasets can reinforce structural prejudices.

Supreme Court's Position

- **Judicial Consciousness and Oversight:** The Supreme Court affirmed that judges are "overconscious" of AI-related risks.
- **Human Accountability Remains Central:** Verification responsibility lies with both advocates and judicial officers.
- **Capacity Building Through Training:** Judicial training programmes are addressing challenges posed by AI.

Constitutional and Ethical Dimensions

- **Due Process and Fair Trial Concerns:** Opaque AI usage may violate Articles 14 and 21.
- **Transparency and Explainability:** Judicial reasoning must be open to scrutiny.
 - **Example:** Black-box AI systems conflict with the principle of reasoned orders.
- **Separation of Powers and Institutional Integrity:** Delegation of adjudicatory functions to algorithms threatens constitutional design.
 - Judicial discretion cannot be automated.

Way Forward

- **Clear Judicial AI Guidelines:** AI to be limited to administrative and assistive functions.
- **Mandatory Human Verification:** No AI-generated output to be relied upon without judicial scrutiny.
- **Ethical AI Framework for Judiciary:** Bias audits, transparency norms and explainability standards.
- **Legislative Intervention:** A comprehensive AI governance law addressing judicial use.

B. GOVERNANCE**I. Government policies and Interventions****1. Digital Sovereignty****Why in the news?**

- A nation's **digital footprint** has emerged as a primary source of economic value and an effective instrument of diplomacy and strategic influence.

About Digital Sovereignty

Digital sovereignty refers to the creation of **legal and regulatory frameworks** that ensure sovereign control over data exports and preserve the State's unhindered right to regulate its national digital space.

It operates across three interconnected layers:

- **Physical layer:** Digital infrastructure and technology.
- **Code layer:** Standards, protocols, rules, and system design.
- **Data layer:** Ownership, flow, storage, and use of data.

Pillars of Digital Sovereignty

- **Data Sovereignty:** Data generated within India is stored, processed, and governed under **Indian laws and regulatory oversight**.
- **Technological Sovereignty:** Indigenous capacity in **semiconductors, telecommunications networks, artificial intelligence, cybersecurity, and cloud computing**.
- **Platform Sovereignty:** Reducing strategic dependence on **foreign social media, e-commerce, and digital service platforms**.
- **Cyber Sovereignty:** Ability of the State to **secure cyberspace**, prevent cyber threats, and enforce laws within national digital boundaries.
- **Regulatory Sovereignty:** Independent authority to frame and enforce **digital policies, standards, and rules** without external coercion.

Importance of Digital Sovereignty

- **National Security:** Storage of sensitive personal and strategic data in foreign jurisdictions subjects it to **foreign laws and surveillance frameworks**, creating vulnerabilities in India's national security architecture.
- **Increasing Cyber Threats:** Rising incidents of **data breaches, cyber espionage, and cyber warfare** necessitate greater control over critical digital assets.
- **Economic Interests:** Digital sovereignty encourages the growth of a **domestic data-centre and cloud ecosystem**, generating employment and technological capability.
- **Improved Data Management:** Domestic storage allows **better monitoring, auditing, and enforcement** to prevent misuse and data breaches.

- **Global Power Dynamics:** Countries with strong digital capabilities increasingly act as **rule-setters** in global digital governance and standards-setting forums.

Challenges

- **Big Tech Dominance:** Excessive reliance on **U.S. and Chinese technology platforms** creates market concentration and regulatory asymmetry.
- **Global Interconnectedness:** The inherently **borderless nature of the internet** complicates jurisdictional enforcement and regulation.
- **Global Business Impact:** Strict data localisation norms may increase **operational costs**, affecting innovation and foreign investment.
- **Compliance Burden:** Businesses face legal and regulatory complexity due to **multiple and overlapping localisation regimes**, especially in cross-border operations.
- **Technological Dependence:** Continued reliance on imports for **semiconductors, telecom equipment, operating systems, and cloud architecture**.
- **Skilled Workforce Gaps:** Shortage of expertise in **cybersecurity, chip design, artificial intelligence, and quantum computing**.

Government Initiatives on Digital Sovereignty

- **Digital Personal Data Protection (DPDP) Act, 2023**
 - Establishes a **sovereign legal framework** for protection of personal data.
 - Mandates **consent-based data processing** and purpose limitation.
 - Empowers the government to regulate **cross-border data transfers**.
 - Strengthens India's authority over how citizen data is collected, stored, and used.
- **Competition (Amendment) Act, 2023**
 - Enhances the powers of the Competition Commission of India (CCI).
 - Enables faster investigation and penalties in digital market abuse cases.
 - Supports regulatory sovereignty over platform-driven monopolies.
- **Digital Public Infrastructure (DPI)**
 - Includes Aadhaar, UPI, DigiLocker, India Stack.
 - Built as sovereign, interoperable public digital goods.
 - Reduces dependence on foreign proprietary platforms.
 - Enables domestic innovation on open standards.
- **Open Network for Digital Commerce (ONDC)**
 - Promotes an **open and interoperable e-commerce ecosystem**.
 - Reduces dominance of a few large foreign platforms.
 - Encourages participation of **small businesses and startups**.
 - Strengthens platform sovereignty.
- **National AI Strategy (NITI Aayog)**
 - Promotes responsible and indigenous AI development.
 - Focus on public sector use-cases and domestic datasets.
 - Supports sovereign AI capabilities rather than foreign dependency.

2. Draft Indian Statistical Institute Bill, 2025

Why in the news?

- The **Ministry of Statistics and Programme Implementation (MoSPI)** released the **Draft Indian Statistical Institute (ISI) Bill, 2025**, proposing to repeal the **Indian Statistical Institute Act, 1959**.

Significance of the Indian Statistical Institute

- **Historic legacy and national role:** Founded in **1931** by **P.C. Mahalanobis**, ISI emerged from the intellectual ferment of the **Bengal Renaissance** and later became central to India's post-Independence planning framework.
- **Institution of National Importance (INI):** The **ISI Act, 1959** declared ISI an INI while allowing it to function as a **registered society**, preserving autonomy through its own bye-laws and academic governance.
- **Academic excellence and global reputation:** ISI has produced globally renowned scholars like **C.R. Rao** and **S.R.S. Varadhan**, and offers specialised programmes in **Statistics, Mathematics, Economics, Computer Science, Cryptology, and Operations Research**.

Concerns Raised by Students and Academicians

- **Erosion of academic autonomy:** Academicians argue that repealing the 1959 Act violates the spirit of the original compact between ISI and the government.
- **Threat to cooperative federalism:** By bypassing the **West Bengal Societies Registration Act**, the Bill is seen as infringing upon State jurisdiction.
- **Impact on basic research:** ISI's strength lies in **long-horizon fundamental research**, which may not yield immediate commercial returns.
- **Risk of political interference:** Centralised appointments raise fears of ideological or political influence over academic recruitment.

Government's Rationale

- **Global competitiveness and reforms:** The government cites recommendations from multiple review committees, including the **R.A. Mashelkar Committee (2020)**, which called for governance reforms and academic expansion.
- **Modern governance framework:** MoSPI argues that a statutory corporate structure will improve efficiency, accountability, and global engagement.

Conclusion

The draft **Indian Statistical Institute Bill, 2025** highlights a critical governance dilemma: how to modernise premier institutions without undermining their **academic freedom, federal ethos, and research culture**. While global competitiveness and administrative reform are legitimate goals, restructuring must be **consultative, transparent, and autonomy-preserving**.

3. New Labour Codes

Why in the news?

- In November 2025, the Union government announced its intent to operationalise the **four Labour Codes**-passed by Parliament between **2019 and 2020**-marking the most comprehensive overhaul of India's labour law framework since Independence.

Why Has Implementation Been Delayed?

- **Concurrent subject complications:** Labour falls under the **Concurrent List (Seventh Schedule)**, requiring both the **Centre and States** to frame Rules.
 - As of July 2025, **West Bengal and Lakshadweep** have not pre-published Rules under any code, while **Tamil Nadu** is yet to do so under the Code on Social Security.
- **Uneven State preparedness:** Although the Centre notified draft Rules in 2020, delayed State action has slowed rollout.
 - Delhi has published Rules only for the Code on Wages.

The Four Labour Codes: Key Features

- **Code on Wages, 2019:** Repeals four wage-related laws, ensuring **universal minimum wage coverage**, timely payment, and gender-neutral remuneration.
 - Introduction of a **national floor wage** to prevent sub-minimum wages across States.
- **Industrial Relations Code, 2020:** Merges laws on trade unions, standing orders, and industrial disputes, aiming to simplify dispute resolution.
 - Introduction of the concept of a **sole negotiating union**.
- **Code on Social Security, 2020:** Consolidates nine laws to extend social security to **unorganised, gig, and platform workers**.
 - Enabling provident fund and insurance coverage for app-based workers.
- **Occupational Safety, Health and Working Conditions (OSHC) Code, 2020:** Rationalises workplace safety laws across sectors like factories, mines, and construction.
 - Uniform safety standards and enabling women to work in all sectors, including night shifts.

Major Changes Introduced

- **Formalisation and simplification:** Reduction in compliance burden through **digitisation and harmonised definitions**.
 - Single registration and licensing for establishments.
- **Expanded role for women and inclusivity:** Removal of legal barriers on women working at night and prohibition of discrimination against **transgender persons**.
 - Women allowed night shifts in factories with safety safeguards.
- **Shift in enforcement philosophy:** Move from punitive inspections to **compliance support and awareness**.
 - Inspector-cum-facilitator model.

Impact on Trade Unions and Tripartite Mechanisms

- **Curtailement of collective bargaining powers:** Trade unions fear restrictions on union formation, leadership, and representation.
 - Limitations on outsiders serving as office-bearers.
- **Restrictions on the right to strike:** Stricter notice requirements and procedural hurdles.
 - Extended notice periods even in non-essential services.
- **Marginalisation of tripartite dialogue:** The **Indian Labour Conference**, a key tripartite forum, has not met for over a decade.
 - Trade unions demand its revival before implementation.

Social Security: Expansion or Exclusion?

- **Government's claim:** Codes aim to bring **more workers**, including gig and platform workers, into social security nets.
 - Statutory recognition of gig workers under the Social Security Code.
- **Trade union concerns:** Higher worker thresholds for coverage may exclude many from benefits.
 - Increased factory licence thresholds may push workers out of statutory protections.
- **Support from large industry:** Industry bodies like **CII** welcome simplification and flexibility.
 - Uniform rules across States improving India's investment climate.
- **Concerns of MSMEs:** MSMEs fear higher compliance costs and business disruption.

Conclusion

The four Labour Codes represent a **structural transformation** of India's labour regime, aimed at aligning labour laws with a changing economy. However, their success hinges not merely on legislative consolidation but on **cooperative federalism, meaningful tripartite dialogue, and credible expansion of social security**.

4. Sanchar Saathi App

Why in the news?

- The recent directive by the Department of Telecommunications (DoT) mandating the pre-installation of the Sanchar Saathi application on all mobile phones has raised several legal and ethical concerns.

Government's Rationale and the Directive

- Objective of telecom cybersecurity:** The Sanchar Saathi platform is aimed at **IMEI verification**, detection of counterfeit or cloned devices, and protection against telecom fraud.
- Mandatory pre-installation requirement:** Clause 7(b) of the DoT directive requires manufacturers to ensure the app is “**readily visible**” and that its functions are “**not disabled or restricted**”.
- Contradictory executive clarification:** Telecom Minister **Jyotiraditya Scindia** later stated verbally that the app is **optional** and can be deleted by users.

Issue of Consent and the ‘Default Effect’

- Absence of meaningful user consent:** Experts argue that pre-installation removes genuine user choice.
- The default bias problem:** Behavioural studies show users rarely uninstall default apps.
- Legal ambiguity:** The inconsistency between the written directive and oral assurances weakens the legitimacy of consent.

Constitutional Test: Privacy Jurisprudence

- Right to privacy as a fundamental right:** The **K.S. Puttaswamy (2017)** judgment recognised privacy as intrinsic to **Article 21**. Any State intrusion must meet strict constitutional thresholds.
- Three-fold test for State action:** The Supreme Court mandated that any privacy-infringing measure must satisfy:
 - Legality** (backed by law)
 - Necessity** (legitimate State aim)
 - Proportionality** (least intrusive means)
 - Example:** Surveillance measures require clear statutory backing.
- Failure on legality and proportionality:** Legal experts argue the Sanchar Saathi mandate lacks a **statutory basis** and relies only on executive instructions.
 - Similar to Aadhaar, which eventually required a dedicated Act to survive judicial scrutiny.
- Excessive permissions:** The app seeks access to **location, camera, and call logs**, raising red flags.
- Risk of ‘function creep’:** Data collected for one purpose may be repurposed later without consent.
- Single point of failure:** A government-mandated app becomes an attractive target for cyberattacks.

Conclusion

The Sanchar Saathi pre-installation mandate represents a **critical test of India's privacy framework in the digital age**. While cybersecurity and counterfeit prevention are legitimate State objectives, **executive overreach without statutory backing**, lack of meaningful consent, and disproportionate intrusion into personal devices risk violating constitutional safeguards.

5. Surveillance Apps and Accountability

Why in the news?

- The increasing use of digital surveillance tools such as biometric attendance, mobile monitoring apps and facial recognition in welfare schemes has raised concerns about their effectiveness.

Tech-fixes as tools for accountability

- **Underlying assumption of digital monitoring:** Governments assume that biometric attendance, geo-tagging and photographic verification can address absenteeism, corruption and delays by enforcing discipline and transparency among public employees and welfare functionaries.
- **Biometric attendance systems:** Biometric attendance shifted focus from work outcomes to mere clocking-in.
 - In Jharkhand, officials prioritised attendance marking over task completion, while a **RCT (Randomised Controlled Trial)** in Rajasthan found that biometric monitoring reduced nurse attendance over time.
- **NMMS in MGNREGA:** The **NMMS (National Mobile Monitoring System)** app, introduced in 2022, mandates twice-daily photographs to prevent inflated attendance under **MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act)**.
 - However, it ensures only worker presence, not productive work, and has been widely manipulated through fake or irrelevant image uploads, as officially acknowledged by **MoRD (Ministry of Rural Development)** in 2025.
- **FRT and ABBA in welfare delivery:** **FRT (Facial Recognition Technology)** under the Poshan Tracker was made compulsory for **THR (Take Home Rations)** distribution under **ICDS (Integrated Child Development Services)**, while **ABBA (Aadhaar-Based Biometric Authentication)** was earlier mandated for **PDS (Public Distribution System)** rations.
 - In practice, these measures led to exclusion of the elderly, sick and persons with disabilities, increased transaction time and adaptive corruption, resulting in “pain without gain”.
- **Impact on frontline workers:** Excessive emphasis on digital proof penalises sincere workers.
 - **ANMs (Auxiliary Nurse and Midwives)** and anganwadi workers face penalties for counselling or service delivery without photo uploads, or due to connectivity-related geo-tagging errors, leading to demotivation.

Accountability without responsibility

- **Accountability versus responsibility:** Accountability enforces compliance with external rules, while responsibility involves self-motivation to act in public interest, as highlighted by Jean Drèze and Amartya Sen.
- **Limits of surveillance-based governance:** Tech-fixes cannot foster ethical commitment or public service motivation. They prioritise procedural compliance over meaningful outcomes in welfare delivery.

Way Forward

- **Shift to trust-based governance:** Strengthen work culture, professional ethics and supportive supervision instead of excessive surveillance.
- **Technology as an enabling tool:** Use digital tools to assist service delivery and monitoring, without replacing human judgment and flexibility.
- **Inclusive design of welfare systems:** Provide alternatives for the elderly, disabled and connectivity-poor regions to minimise exclusion.

6. DHRUVA**Why in the news?**

- The Department of Posts has proposed a new framework called **DHRUVA (Digital Hub for Reference and Unique Virtual Address)** to standardise, digitise and securely share physical addresses in India.

What is the DHRUVA framework?

- **DHRUVA (Digital Hub for Reference and Unique Virtual Address)** is envisioned as a **DPI (Digital Public Infrastructure)**, similar to Aadhaar and UPI (Unified Payments Interface)

- **Aim:** It aims to replace repeated manual entry of physical addresses with a standardised digital “label”, similar to an email address
- **Objective:** The objective is to improve accuracy, efficiency and inclusiveness in address-based service delivery.

Use cases of DHRUVA

- **Consent-based address sharing:** DHRUVA enables users to tokenise their physical addresses and share them with public or private platforms only after explicit consent.
- **Seamless address updates:** The framework allows users to update their address centrally when they relocate. This ensures continuity in essential services such as postal delivery, e-commerce shipments and utility provisioning without repeated manual updates across platforms.
- **Service discovery at location level:** By linking digital addresses to location data, DHRUVA can help platforms identify which doorstep services are available at a given location.
- **Cross-sector applications:** DHRUVA can be used by government agencies for targeted welfare delivery and by private entities such as logistics and gig platforms to reduce delivery errors, improve efficiency and lower operational costs.

Concerns

- **Person-linked address architecture:** DHRUVA links addresses primarily to individuals rather than to independently surveyed physical structures. This limits its usefulness for urban planning, where infrastructure mapping requires stable, location-based identifiers irrespective of occupancy or ownership.
- **Dependence on user consent:** If citizens choose not to generate or share address labels, it can result in fragmented and incomplete datasets, weakening governance outcomes.
- **Incomplete infrastructure mapping:** A consent-driven, person-centric system may fail to capture informal settlements, vacant properties or non-residential infrastructure, reducing planning accuracy.
- **Global divergence in address digitisation:** In many countries, digital address systems are structure-based and do not embed personal data. This avoids consent-related barriers and enables richer, more reliable datasets for taxation, utilities, disaster management and urban planning.

Way Forward

- **Structure-based address framework:** DHRUVA should gradually move towards linking digital addresses to surveyed physical structures rather than individuals.
- **Clear legal backing for data use:** A dedicated legal framework is required to authorise address data collection, sharing and governance.
- **Balanced consent architecture:** Consent mechanisms should differentiate between personal service delivery and public interest uses such as urban planning, disaster management and census operations, where anonymised or non-personal data can be used.
- **Pilot-based implementation:** Phased roll-out through pilot projects in urban and rural areas can help identify governance gaps, technical challenges and inclusion risks before nationwide adoption.
- **Independent governance oversight:** An autonomous institutional body, on the lines of the National Payments Corporation of India (NPCI), should oversee standards, security, grievance redressal and stakeholder coordination to ensure credibility and public trust.

7. Electoral Trusts

Why in the news?

- With the **Supreme Court scrapping the Electoral Bonds Scheme in February 2024**, companies have reverted to **electoral trusts** as the primary channel for political donations.

What are Electoral Trusts?

- **Electoral trusts** are **non-profit entities** created to receive voluntary contributions and distribute them to political parties
- Designed to **facilitate political donations** while ensuring **disclosure and transparency**

Legal Framework

- **Electoral Trust Scheme, 2013:** Notified on **31 January 2013**.
- **Section 17CA, Income Tax Act, 1961** governs donations
- Political parties receiving funds must be registered under the **Representation of the People Act, 1951**

Who Can Form Electoral Trusts?

- Any **company registered under the Companies Act**

Who Can Donate to Electoral Trusts?

- Indian citizens
- Companies registered in India
- Firms
- Hindu Undivided Families (HUFs)
- Associations of Persons (AOPs)

How to Use of Funds?

- Trusts cannot use donations for the benefit of their members or any purpose other than permitted administrative expenses and political contributions.

How Electoral Trusts Function

- **Collection of Funds:** Contributions received only through **banking channels**. Eliminates anonymous cash donations.
 - **PAN mandatory** for residents; **passport number** for NRIs
- **Mandatory Distribution Rule**
 - **At least 95%** of annual receipts must be donated to political parties
 - **Maximum 5%** permitted for administrative expenses
- **Renewal Requirement:** Trusts must apply for **renewal every three financial years**.

Electoral Trusts vs Electoral Bonds

Aspect	Electoral Trusts	Electoral Bonds
Introduced	2013	2018
Donor anonymity	No	Yes
Disclosure to ECI	Mandatory	Not available
Transparency	High	Low
Current status	Operational	Scrapped (2024)

II. Developmental processes and Development industry**1. Aviation Safety Norms****Why in the news?**

- Following large-scale flight cancellations by IndiGo, the Union Minister of Civil Aviation and the **DGCA (Directorate General of Civil Aviation)** placed **FDTL (Flight Duty Time Limitations)** norms under abeyance.

About FDTL (Flight Duty Time Limitations)

- **FDTL (Flight Duty Time Limitations)** are regulatory limits prescribed under **CAR (Civil Aviation Requirements)** to cap pilots' flight hours, duty periods and mandate minimum rest to prevent fatigue and ensure safe aircraft operations.
- **Safety rationale behind FDTL:** Pilot fatigue is a globally recognised risk factor in aviation accidents.
 - The **ICAO (International Civil Aviation Organization)** mandates fatigue risk management as a core component of flight safety, recognising its impact on decision-making, reaction time and situational awareness.
- **Historical precedence of regulatory compromise:** In 2007, the DGCA introduced a robust CAR to address pilot fatigue.
 - However, following airline pressure, the **MoCA (Ministry of Civil Aviation)** placed it in abeyance in 2008. This reflects a long-standing tendency to prioritise airline profitability over flight safety.
- **Judicial inconsistency in safety oversight:** The Bombay High Court initially criticised the dilution of pilot duty-hour norms, highlighting that safety cannot be sacrificed for commercial interests.
 - However, the subsequent reversal of this stance weakened judicial safeguards over aviation safety.

Why IndiGo is Hit Harder Than Other Airlines?

- **High aircraft utilisation model:** IndiGo follows an ultra-high aircraft utilisation strategy to minimise costs and maximise turnaround efficiency.
- **Large domestic network dependency:** IndiGo operates the largest domestic network in India, accounting for over **55% of domestic market share**.
- **Delayed regulatory preparedness:** Both IndiGo and the **DGCA (Directorate General of Civil Aviation)** were aware that revised FDTL norms would take effect from November 1, 2025. Failure to recruit and train sufficient crew in advance resulted in last-minute cancellations and chaos.

Way Forward

- **Strengthen crew planning and redundancy:** Airlines must demonstrate adequate pilot strength aligned with **FDTL (Flight Duty Time Limitations)** before schedule approvals, especially during peak and fog seasons.
- **Safety-first regulatory enforcement:** The **DGCA (Directorate General of Civil Aviation)** should ensure consistent enforcement of fatigue norms and resist ad hoc relaxations driven by commercial pressure.
- **Link capacity allocation to compliance:** Slot allocation and seasonal schedules should be contingent on proven staffing adequacy and safety compliance, enabling reallocation to capable carriers if necessary.

III. Important Aspects of Governance (RTI, Citizen Charter etc)**1. India's Invisible Mayors and the Crisis of Urban Governance****Why in the news?**

- The recent rise of **Zohran Mamdani as Mayor of New York City** has once again drawn attention to a glaring contrast in India's urban governance - the **near invisibility of elected city leadership**, especially Mayors, in major Indian cities.

Constitutional Framework Governing the Mayor

- **Absence of Direct Constitutional Mention:** Articles 243P to 243ZG deal with municipalities but leave the design of the mayoral system to State legislatures.
- **Part IXA - Municipalities:** Municipal Corporations for large urban areas are recognised under Article 243Q.

- **State Legislature Discretion:** Article 243R empowers States to determine the **composition, powers and mode of election** of municipalities, including the Mayor.

Election and Tenure of the Mayor

- **Mode of Election:** The Constitution leaves the method of mayoral election to States.
- **Example:**
 - Indirect election by councillors (Bengaluru, Mumbai)
 - Direct election (earlier experimented in some States)
- **Tenure Not Constitutionally Fixed:** The Mayor's tenure is defined by State municipal laws, not the Constitution.
 - Many Mayors serve for **one year**, severely limiting policy continuity.
- **Subordination to Municipal Commissioner:** The Mayor is often not the executive head of the city.
 - The IAS-appointed Municipal Commissioner exercises executive authority.

Powers and Functions of the Mayor

- **Presiding Authority:** The Mayor generally presides over meetings of the municipal council.
- **Symbolic Head of the City:** Represents the city at official functions.
- **Limited Executive Role:** Executive powers lie with the Commissioner rather than the Mayor.

Structural Roots of Weak Urban Leadership

- **State-Centric Political Power:** In contemporary India, real control over cities rests with the **Chief Minister's Office**, not with Mayors.
- **Assembly-Centric Political System:** Post-Independence, political careers and power have become centred around **State Assemblies**, marginalising urban local governments.
 - Earlier leaders like Subhas Chandra Bose or Vallabhbhai Patel gained prominence through municipal politics - a pathway now largely closed.
- **Role of Bureaucracy Over Elected Representatives:** IAS officers heading municipal corporations wield more authority than elected Mayors.

Political and Institutional Constraints

- **MLAs and MPs as Ex-Officio Members:** Their presence makes Mayors and corporators politically subordinate.
- **Dominance of Parastatal Agencies:** Urban services are controlled by autonomous bodies outside municipal control.
- **Apathy and Low Civic Awareness:** Urban citizens often lack understanding of federal and local governance structures.

Way Forward

- **Clear Functional Delineation:** Each level of government must have clearly defined responsibilities.
- **Financial Decentralisation:** Guaranteed and predictable funding to municipalities and wards.
- **Curtailing State Executive Control:** Reducing excessive intervention by the Chief Minister's Office.
- **Reforming Parastatals:** Aligning them under democratic municipal oversight.

C. SOCIAL JUSTICE

I. Welfare Schemes for Vulnerable Sections

1. Data on Missing Children

Why in the news?

- The Supreme Court (SC) has expressed concern over the large number of missing children who remain untraced across India and the lack of coordinated, nationwide data to address the issue effectively.

Key Directions of the Supreme Court

- Nationwide data compilation:** The SC has directed the Union Government to submit consolidated nationwide data on missing children for the last six years. This aims to assess the scale of the problem and identify regional patterns and systemic gaps.
- Appointment of a nodal officer in the Home Ministry:** The Court ordered the Ministry of Home Affairs (MHA) to appoint a dedicated nodal officer within two weeks. The officer will act as the central coordinating authority with States and Union Territories (UTs).
- Strengthening Mission Vatsalya portal:** The SC emphasised effective and coordinated use of the Mission Vatsalya portal, managed by the Ministry of Women and Child Development (MWCD), for uploading and monitoring cases of missing children.

Significance of the Intervention

- Child protection framework:** The directive strengthens India's child protection architecture under Mission Vatsalya by ensuring better monitoring, reporting and coordination.
- Accountability and transparency:** Centralised data and a designated nodal officer improve institutional accountability in addressing trafficking, exploitation and child labour risks.
- Judicial oversight:** The intervention reflects the Court's proactive role in enforcing constitutional obligations under Articles 21 and 39(f) relating to child welfare.

Conclusion

The Supreme Court's directions mark an important step towards a coordinated, data-driven response to the crisis of missing children in India.

2. Viksit Bharat - Guarantee for Rozgar and Ajeevika Mission (Gramin) Bill

Why in the news?

- The President of India has given assent to the *Viksit Bharat-Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB-G RAM G) Bill, 2025* seeks to replace the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005.

Salient Features of the Act

- Enhanced Statutory Employment Guarantee:** Statutory guarantee of not less than 125 days of wage employment per rural household per financial year
- Balanced Provision for Agriculture and Rural Labour:** States empowered to notify an aggregated pause period of up to 60 days in a financial year.
- Timely Wage Payments and Compensation:** Wages to be paid **weekly or within 15 days** of completion of work.

- **Employment Linked with Productive Rural Infrastructure:** Wage employment aligned with creation of durable public assets.
- **Employment Linked with Productive Rural Infrastructure:** Wage employment under the Act is explicitly aligned with the creation of durable public assets across four priority thematic domains:
 - Water security and water-related works
 - Core rural infrastructure
 - Livelihood-related infrastructure
 - Works to mitigate extreme weather events
- **Decentralised Planning with National Convergence:** Planning originates from **Viksit Gram Panchayat Plans (VGPPs)**
 - Planning originates from Viksit Gram Panchayat Plans (VGPPs)
 - VGPPs will be aggregated through the Viksit Bharat National Rural Infrastructure Stack (VB-NRIS) to enable coordinated national rural infrastructure planning.
- **Institutional Oversight:**
 - **Central and State Gramin Rozgar Guarantee Councils:** for reviewing, monitoring, and advising on scheme implementation.
 - **National and State Level Steering Committees:** to provide recommendations on financial allocations, inter-ministerial convergence, and strategic oversight.
- **Transparency & Monitoring:**
 - Focus on digitization (e.g. biometric authentication, AI-enabled analytics);
 - Social Audit by Gram Sabha & Grievance Redressal at Block and District levels.
- **Reformed Financial Architecture**
 - The Act is implemented as a **Centrally Sponsored Scheme**, to be notified and operationalised by the State Governments in accordance with the provisions of the Act.
 - The **cost-sharing pattern** is 60:40 between the Centre and States,
 - 90:10 for North Eastern and Himalayan States, and 100% central funding for Union Territories without legislatures.
- **Unemployment Allowance:** The Act removes earlier dis-entitlement provisions and restores unemployment allowance as a meaningful statutory safeguard. Where employment is not provided within the stipulated period, unemployment allowance becomes payable after fifteen days.

3. Child Trafficking

Why in the news?

- The **Supreme Court of India** has termed **child trafficking and commercial sexual exploitation** as a “*deeply disturbing reality*” that continues to flourish in India despite the presence of protective laws.

Judicial sensitivity

Courts have been asked to bear in mind several key points while recording the evidence of a minor trafficking victim

■ The child's socio-economic and cultural vulnerability, especially if from a marginalised or backward community ■ Organised crime networks operate through complex, layered structures that often mislead minors; victims should not be faulted for failure to protest promptly	■ Judicial consideration of a minor's testimony must be sensitive and avoid secondary victimisation ■ A conviction can rest on the sole testimony of the victim if it is credible and convincing ■ A trafficking victim's testimony deserves the same weight as that of an injured witness
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Nature of Child Trafficking Networks

- Child trafficking is carried out by **organised cartels** with a **complex, layered structure**
- These verticals operate in a **diffused and disjointed manner**, deliberately masked by deception.
- **Child trafficking** is a grave violation of **Article 21 (Right to Life and Dignity)** and **Article 23 (Prohibition of Trafficking)** of the Indian Constitution.
- India has adopted a **multi-layered legal, institutional, administrative and community-based framework** to prevent trafficking of children for labour, sexual exploitation, begging and forced marriage.

Steps Taken to Prevent Child Trafficking in India

- Constitutional and Legal Measures: **Article 23** explicitly prohibits trafficking in human beings.
- **Immoral Traffic (Prevention) Act, 1956 (ITPA)** criminalises trafficking, brothel keeping and exploitation
- **Juvenile Justice (Care and Protection of Children) Act, 2015** treats trafficked children as *children in need of care and protection*
- **POCSO Act, 2012** addresses sexual exploitation of trafficked children: Special courts for speedy trial in child sexual abuse cases.
- **Bonded Labour System (Abolition) Act, 1976**: Used in trafficking of children for brick kilns and agriculture.
- **Ujjawala Scheme** for prevention and rehabilitation of trafficked victims
- **Mission Vatsalya** (earlier ICPS): Funds shelter homes, counselling, legal aid and rehabilitation.
- **Child helpline 1098** (now under Mission Vatsalya)
- International Commitments
 - UN Convention on the Rights of the Child (UNCRC)
 - SAARC Convention on Preventing Trafficking of Women and Children

II. Issues Relating to Development and Management of Social Sector/Services relating to Health, Education, Human Resources

1. Make Fertility Care Safer and Affordable: WHO

Why in the news?

- The **World Health Organization (WHO)** has released its **first-ever global guideline** on the **prevention, diagnosis, and treatment of infertility**, calling upon countries to make fertility care **safer, fairer, and more affordable**.

Key Features of the WHO Guidelines

- **Comprehensive recommendations across the care continuum**: The guideline provides **40 evidence-based recommendations** covering prevention, diagnosis, and treatment of infertility.
 - It outlines a stepwise approach from basic evaluation to advanced interventions like **in vitro fertilization (IVF)**.
- **Integration into national health systems**: WHO advocates integrating fertility care into **national health strategies, services, and financing frameworks**.
 - Inclusion of infertility services under **Universal Health Coverage (UHC)** mechanisms can reduce out-of-pocket expenditure.
- **Emphasis on prevention and risk-factor reduction**: The guidelines highlight preventable causes such as **untreated sexually transmitted infections (STIs)** and **tobacco use**.
- **Lifestyle-based interventions**: Healthy diet, regular physical activity, and tobacco cessation are recommended for individuals and couples planning pregnancy.

- **Early fertility awareness:** WHO stresses the importance of providing fertility-related information early to enable informed reproductive choices.

Concerns Over Limited Access and High Costs

- **Severe inequities in access to fertility care:** Despite rising demand, fertility services remain inaccessible for many, especially in developing countries.
- **Catastrophic out-of-pocket expenditure:** WHO notes that infertility treatment is often privately financed, leading to financial distress.
 - In some settings, **a single cycle of IVF costs twice the average annual household income**, making it unaffordable for most families.
- **Urban and socio-economic disparities:** Access is often limited to urban, affluent populations, excluding rural and marginalised groups.

Implications for National Health Policy

- **Alignment with Universal Health Coverage goals:** The guidelines reinforce the need to treat infertility as part of reproductive health rights.
- **Need for public investment and regulation:** Greater public funding can reduce dependence on expensive private care.
- **Context-specific adaptation:** WHO encourages countries to adapt recommendations based on local epidemiology and resources.

Conclusion

The WHO's global infertility guidelines mark a significant shift in recognising infertility as a **public health and social equity issue**.

2. AIDS and TB Fight

Why in the news?

- On **World AIDS Day (December 1)**, India's successful fight against the **HIV/AIDS epidemic** offers valuable lessons for tackling another persistent public health challenge - **tuberculosis (TB)**.

India's HIV Challenge

- **Early spread and vulnerability:** By the early 1990s, HIV had spread across India, primarily through **unprotected heterosexual transmission**, with injecting drug use driving infections in parts of the Northeast.
- **National response with structural bottlenecks:** India launched the **National AIDS Control Project (NACP) in 1992**, supported by a **World Bank loan of \$84 million**. However, conventional bureaucratic fund flows slowed implementation.

The TB Burden and HIV-TB Linkages

- **Disproportionate global burden:** According to the **WHO Global TB Report 2025**, India accounts for **25% of global TB cases (36 million)**.
 - In contrast, India has only **7.5% of the global HIV-positive population**, highlighting TB as the larger public health threat.
- **HIV-TB co-infection challenge:** TB remains the **leading opportunistic infection** among HIV patients and causes **25% of AIDS-related deaths in India**.
 - High prevalence of **multidrug-resistant TB (MDR-TB)** further complicates treatment.

India's TB Response and Policy Priorities

- **Ambitious national targets:** India advanced its TB elimination target to **2025**, ahead of the global goal of 2030.
 - While the target has not been fully met, India's decline in new TB cases is faster than the global average.
- **Government initiatives:** The **Pradhan Mantri TB Mukh Bharat Abhiyaan (PMTBMBA)** integrates treatment support, nutrition assistance, community participation, and CSR involvement.
 - Focus on universal testing, early reporting, and uninterrupted treatment.

Tamil Nadu's TB Control Model

- **State-wise disparities in TB burden:** Five States - **Uttar Pradesh, Maharashtra, Madhya Pradesh, Bihar, and Rajasthan** - account for **56% of India's TB cases (2024)**.
 - Tamil Nadu's relatively lower burden reflects administrative efficiency.
- **Technology-driven intervention:** Tamil Nadu became the **first State to integrate a TB mortality prediction model** into its screening system.
 - The **ICMR - National Institute of Epidemiology (NIE)** software identifies high-risk patients at diagnosis.
- **Integrated delivery approach:** Rapid testing, immediate reporting, timely treatment, and nutrition support are synchronised.
 - Close coordination between the **State National Health Mission** and the **Central TB Office** mirrors the AIDS-era partnership model.

Way Forward

- **Autonomous implementation structures:** Just as AIDS Control Societies accelerated HIV response, **flexible institutional mechanisms** are essential for TB control.
- **Data-driven targeting:** Predictive analytics can prioritise high-risk patients and prevent deaths.
- **Cooperative federalism in health delivery:** State innovation supported by Central financing remains critical.

3. National Action Plan on Antimicrobial Resistance (NAP-AMR 2.0)

Why in the news?

- India's **National Action Plan on Antimicrobial Resistance (NAP-AMR 2.0) (2025 - 2029)** has been released.

From NAP-AMR 1.0 to 2.0: What Has Changed

- **Achievements of the first plan (2017):** Integration of human and animal health surveillance platforms under national guidance.
- **Implementation gap at the State level:** Despite national momentum, only a few States such as **Kerala, Madhya Pradesh, Delhi, Andhra Pradesh, Gujarat, Sikkim and Punjab** developed State Action Plans, and even fewer executed them meaningfully.
- **Structural reason for weak execution:** Key drivers of AMR - hospital regulation, pharmacy control, veterinary services, agriculture practices, food safety, and waste management - fall largely under **State jurisdiction**.

Strengths of NAP-AMR 2.0

- **Clearer implementation focus:** Emphasis on structured surveillance across human, animal, agricultural, and environmental sectors.
- **Stronger One Health integration:** The new plan deepens attention to **food systems, waste management, and environmental contamination**, recognising their role in AMR transmission.
- **Recognition of the private sector's role:** Given that a significant share of healthcare and veterinary services is delivered privately, the plan explicitly includes **private sector participation**.

- **Innovation and scientific emphasis:** Greater focus on **rapid diagnostics, point-of-care tools, alternatives to antibiotics, and environmental monitoring.**
- **Enhanced national oversight:** Intersectoral supervision has been placed under **NITI Aayog** through a dedicated Coordination and Monitoring Committee.

Where NAP-AMR 2.0 Falls Short

- **Absence of enforceable Centre-State mechanisms:** The plan urges States to establish AMR Cells and Action Plans but provides **no binding mechanism** to ensure compliance.
- **Lack of structured federal platforms:** There is no formal **Centre-State AMR council**, joint review system, or mandatory reporting architecture.
- **No financial anchoring:** NAP-AMR 2.0 lacks **dedicated funding pathways** or incentive structures such as NHM-linked grants.
 - Without fiscal signals, AMR competes poorly with other State priorities.
- **Risk of remaining a technical document:** Without political and administrative ownership at the State level, the plan risks limited real-world impact.

Conclusion

AMR cannot be contained through policy guidance alone. In a federal system where the drivers of resistance lie predominantly within State control, success depends on **structured Centre-State coordination, political engagement, financial incentives, and shared accountability.**

4. Infant Malnutrition in Tribal Areas

Why in the news?

- A recent reply by the **Union Ministry of Tribal Affairs in the Lok Sabha** has reignited concerns regarding transparency and accountability, as the government **failed to provide data on infant deaths due to malnutrition**, despite acknowledging widespread undernutrition among children.

What the Parliamentary Reply Reveals

- **Evasion of Mortality Data:** The Union government did not disclose the number of infant deaths due to malnutrition over the last five years.
- **Reliance on Secondary Indicators:** The reply cited **NFHS data** on stunting, wasting, and underweight children.
- **Protocol-Based Approach:** Government emphasised guidelines to reduce morbidity and mortality.

Scale of the Malnutrition Challenge

- **Mismatch in Child Coverage:** India has over **13.7 crore children under five**, but only **6.6 crore** are enrolled at anganwadi centres.
- **Limited Nutritional Assessment:** Only **6.44 crore children** have been assessed using the **Poshan Tracker**.
- **High Burden of Undernutrition:** At least **52% of assessed children** were stunted, wasted, or underweight as of October 2025.

Tribal Regions: A Structural Vulnerability

- **Disproportionate Impact on Tribal Children:** Tribal regions experience higher malnutrition due to poverty, remoteness, and limited health access.
- **Under-Reporting of Deaths:** Malnutrition-related deaths often go unrecorded as immediate causes differ.
- **Weak Convergence of Services:** Health, nutrition, water, and sanitation services operate in silos.

Steps Taken by the Government of India to Reduce Malnutrition

- **National Nutrition Mission (POSHAN Abhiyaan):** Use of **Poshan Tracker** for real-time monitoring of child growth.
- **Saksham Anganwadi and Poshan 2.0:** Focus on nutrition-rich supplementary food and early childhood care.
- **Nutrition as a Development Priority:** Alignment with SDG-2 (Zero Hunger) and SDG-3 (Good Health).
- **Integrated Child Development Services (ICDS):** Provides supplementary nutrition, growth monitoring and early education.
- **Mid-Day Meal Scheme / PM POSHAN:** Ensures nutritional support to school-going children.
- **Vitamin and Micronutrient Supplementation:** Addressing hidden hunger.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Conditional cash transfers to improve maternal nutrition and healthcare access.
- **Anemia Mukht Bharat:** Targets reduction of anemia among women, children and adolescents.
- **Scheme for Adolescent Girls (SABLA):** Focus on nutrition, health and life skills.

Way Forward

- **Mandatory Reporting of Malnutrition-Linked Deaths:** Clear attribution and public disclosure mechanisms are required.
- **Universal Anganwadi Coverage:** Ensuring all under-five children are enrolled and monitored.
- **Tribal-Specific Nutrition Strategy:** Context-sensitive interventions for tribal belts.
Example: Mobile anganwadis and community nutrition workers.
- **Stronger Parliamentary Oversight:** Regular reporting on outcomes, not just schemes.

5. Legalities Involved in Organ Transplants

Why in the news?

- India's poor organ donation rates have renewed focus on legal ambiguities surrounding **BSD (Brainstem Death)** certification under the **THOTA (Transplantation of Human Organs and Tissues Act), 1994**, affecting organ availability and end-of-life care.

India's poor performance in organ donation

- India recorded **0.77 donors per million population (2023)**
- Spain recorded **49.38 donors per million population** in the same period
- Nearly **five lakh Indians die every year** awaiting organ transplantation

Legal status of Brainstem Death (BSD)

- **Recognition under THOTA, 1994:** BSD is defined as irreversible cessation of all brainstem functions. The Act recognises BSD as a form of death equivalent to cardio-pulmonary death.
- **Consistency with Registration of Death law:** The **RBD Act (Registration of Births and Deaths Act), 1969** defines death as "permanent disappearance of all evidence of life". This definition applies equally to BSD and cardiac death.
- **Legal implication:** A BSD certificate issued under THOTA is sufficient for death registration. Issuing multiple death certificates has no legal basis.

Ethical and resource-related concerns

- **Continuation of life support after BSD:**
 - Confusion persists on whether life support should continue if organ donation consent is denied
 - Maintaining a legally dead person on ventilators wastes scarce ICU resources

- **Appropriate medical approach:**
 - Death certification must be final
 - Life support may continue only at family request, with clarity that death has already occurred

Laws and Rules Governing Organ Transplantation in India

- **Transplantation of Human Organs Act 1994:** It is the primary legislation related to organ donation and transplantation in India and is aimed at **regulation of removal, storage and transplantation** of human organs for therapeutic purposes and for prevention of commercial dealings in human organs.
 - **Makes Brainstem Death (BSD)** a legal definition of death and lays down procedures for certification.
- **Transplantation of Human Organs (Amendment) Act, 2011:** It allows swapping of organs and widens the donor pool by including grandparents and grandchildren in the list.
- **Transplantation of Human Organs and Tissues Rules (THOT), 2014:** It has many provisions to remove the impediments to organ donation while curbing misuse/misinterpretation of the rules.

6. 2nd WHO Global Summit on Traditional Medicine

Why in the news?

- India hosted the **2nd WHO Global Summit on Traditional Medicine** in New Delhi.

About Traditional Medicines

- Traditional medicine refers to **codified or non-codified systems** for health care and well-being, comprising **practices, skills, knowledge and philosophies** originating in different historical and cultural contexts, which are distinct from and pre-date biomedicine, evolving with science for current use from an experience-based origin.
- Traditional medicine emphasizes **nature-based remedies** and holistic, personalized approaches to restore balance of mind, body and environment.
- The WHO Global Traditional Medicine Centre (GTMC) in **Jamnagar, Gujarat**.



Key Outcomes of the Summit

- **Global Dialogue and Cooperation:** The summit facilitated high-level discussions among **health ministers, policymakers, researchers, and practitioners** from across the world. It opened pathways for **joint research, regulatory harmonisation, and training and knowledge-sharing** in traditional medicine systems.
- **India as a Global Hub for Traditional Medicine:** Prime Minister highlighted the establishment of the **WHO Global Centre for Traditional Medicine (WHO-GCTM)** in **Jamnagar, Gujarat**, marking India's central role in global traditional medicine research, standard-setting, and evidence generation.
- **Tradition - Technology Convergence:** The summit showcased **digital health technologies, AI-based tools, research innovations, and modern wellness infrastructure**. This convergence demonstrated how **technology can strengthen evidence-based validation, accessibility, and scalability** of traditional medicine.
- **Launch of the Traditional Medicine Global Library:** India announced the **Traditional Medicine Global Library**, an international digital platform aimed at **centralising scientific data, policy documents, and traditional knowledge**, thereby supporting research, transparency, and global collaboration.

7. NITI Aayog Roadmap for Internationalisation of Higher Education in India**Why in the news?**

- NITI Aayog released a policy report laying out a **long-term roadmap to internationalise India's higher education system**, with the stated goal of turning the country into a global hub for **education and research by 2047**.

Key Rationale Highlighted by the Report

- In 2024, for every **1 international student** studying in India, **28 Indian students** went abroad.
- India hosts a **low base of international students** despite scale and capacity. Only about **47,000 international students in 2022**.
- Need to position India as a **global education and research destination**. Target aligned with NEP 2020 internationalisation goals.

Major Policy Recommendations by NITI Aayog

- **Vishwa Bandhu Scholarships** to attract foreign students: Financial support to increase inbound student enrolment.
- **Vishwa Bandhu Fellowships** to attract foreign faculty and research talent: Enhancing international research collaboration and teaching quality.
- Creation of proposed **\$10 billion** corpus of **Bharat Vidya Kosh** as a **national research sovereign wealth fund**.
- **Easing regulatory frameworks** to enable more international campuses in India
- Complemented by **Viksit Bharat Shiksha Adhishthan Bill, 2025: Proposed Standards Council (Manak Parishad)** mandated to design **non-binding internationalisation frameworks**.
- **Branding and Outreach:** Revamp Study in India as a one-stop global platform.
 - Create Alumni Ambassador Network (Bharat ki AAN) to leverage Indian diaspora.
- **Curriculum and Cultural Integration:** Promote interdisciplinary, globally benchmarked curricula.
 - Integrate Indian Knowledge Systems (IKS) with global teaching and research practices.
- **Infrastructure Gaps:** Many Indian institutions lack the facilities, faculty-student ratios, and support systems needed to host international students effectively.

8. Maternal Mortality Rate (MMR)

Why in the news?

- The Union Health Ministry recently said that the rate of institutional deliveries in the country has **increased to 89%**, which led to a significant reduction in the **Maternal Mortality Rate (MMR)**.

Key Highlights

- Institutional delivery rate increased to 89%** nationwide
- Increase directly linked to **reduction in Maternal Mortality Rate (MMR)**
- Government emphasis on **preventive and promotive healthcare**
- Number of **medical colleges increased from 387 (2014) to 821 (2025)**
- AIIMS expansion** from 1 (pre-2000) to 23

Challenges

- Regional and Inter-State Disparities:** High MMR persists in parts of central and eastern India compared to southern States.
- Quality of Institutional Deliveries:** Shortage of skilled obstetricians and anaesthetists in district hospitals.
- Shortage and Maldistribution of Health Workforce:** Shortage and Maldistribution of Health Workforce
- Late Registration and Inadequate Antenatal Care:** Anaemia and hypertension detected late in pregnancy.
- Socio-Cultural Barriers:** Early marriage and early pregnancy

Government Initiatives

- Janani Suraksha Yojana (JSY):** Conditional cash transfer scheme to promote **institutional deliveries**.
- Janani Shishu Suraksha Karyakram (JSSK):** Provides free and cashless delivery services
- Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA):** Ensures **assured, comprehensive antenatal care** on the 9th of every month
- LaQshya Programme:** Improves **quality of care in labour rooms and maternity OTs**
- Anaemia Mukh Bharat (AMB):** Addresses **maternal anaemia**, a major cause of MMR
- Midwifery Initiative:** Introduction of **trained nurse practitioners in midwifery**
- POSHAN Abhiyaan:** Improves **nutritional status of women and children**
- Emergency Obstetric and Newborn Care (EmONC):** Strengthening **referral facilities for obstetric emergencies**

Conclusion

India's reduction in MMR is the result of a **multi-pronged strategy** combining **institutional delivery promotion, quality improvement, nutrition support, skilled workforce development, and surveillance mechanisms**.

III. Issues relating to Poverty and Hunger.

1. World Inequality Report 2026

Why in the news?

- The **World Inequality Report 2026 (WIR 2026)**, prepared by over 200 scholars associated with the **World Inequality Lab (WIL)** and edited by economists **Lucas Chancel, Ricardo Gómez-Carrera, Rowaida Moshrif, and Thomas Piketty**, provides a comprehensive assessment of income, wealth, gender, and climate inequality at global and national levels. It is the third edition after 2018 and 2022.

Income Inequality in India: India continues to remain among the most unequal countries in the world.

- **Top 10% income share:** 58% of national income
- **Bottom 50% income share:** only 15%
- In comparison, the **World Inequality Report 2022** had reported 57% for the top 10% and 13% for the bottom 50%, indicating marginal improvement but persistent concentration.
- The report estimates **average annual income per capita** in India at around **€6,200 (PPP)**, masking wide disparities within society.

Wealth Inequality: Wealth inequality in India is sharper than income inequality.

- **Top 10% hold:** ~65% of total wealth
- **Top 1% alone:** ~40% of national wealth
- **Bottom 50%** possess a negligible share of wealth

Gender Inequality: The report underscores severe gender disparities in India.

- **Female Labour Force Participation Rate (FLFPR):** only **15.7%**, with no significant improvement over the past decade
- **Women's earnings:**
 - 61% of men's earnings per hour (excluding unpaid work)
 - Only 32% when unpaid care work is included
 - Women capture barely **20% of total labour income** in South and Southeast Asia, including India

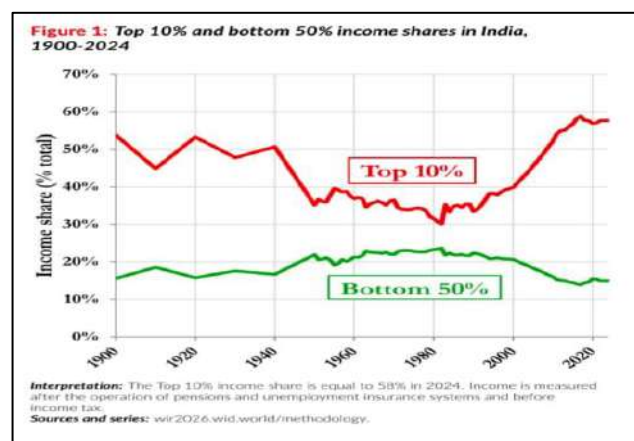
India in the Global Inequality Landscape

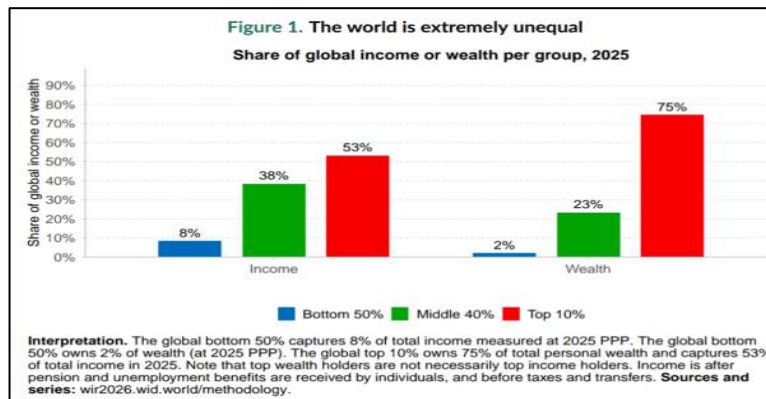
- **Global top 10%** own about **75% of total wealth**, while the **bottom 50% hold just 2%**
- **Top 1% globally control 37% of wealth**, exceeding the combined wealth of the bottom half of humanity
- The **top 0.001%** (fewer than 60,000 individuals) own **three times more wealth than the entire bottom 50% of the world**

In historical perspective:

- In **1980**, India had a relatively larger share of its population in the global middle 40%
- By **2025**, almost the entire Indian population is concentrated in the **global bottom 50%**, indicating a relative decline despite economic growth
- In contrast, **China** has moved a significant share of its population into the global middle and upper-middle income groups

Inequality and Climate Crisis: The report links inequality directly to climate responsibility.





- **Bottom 50% globally** account for only **3% of emissions** linked to private capital ownership
- **Top 10%** account for **77% of such emissions**
- **Top 1% alone** contribute **41%**, almost double the emissions of the bottom 90%

Taxation and Policy Failure: The report highlights systemic failures in taxation systems.

- Effective income tax rates **rise for most citizens but fall sharply for billionaires and centi-millionaires**
- Ultra-rich individuals often pay **lower proportional taxes** than middle-income households
- This regressive taxation undermines state capacity to invest in **education, healthcare, nutrition, and climate action**

Policy Pathways Highlighted in the Report

The report reiterates that inequality is not inevitable and can be reduced through policy choices.

- **Progressive taxation**, especially wealth and inheritance taxes
- **Public investment** in free, high-quality education, universal healthcare, childcare, and nutrition
- **Redistributive mechanisms** such as cash transfers, pensions, unemployment benefits, and targeted welfare programs
- Gender-sensitive policies to expand women's access to paid work and reduce unpaid care burdens

Conclusion

It underscores that without deliberate redistributive policies and effective taxation of the ultra-rich, inequality will continue to undermine social cohesion, democratic legitimacy, and sustainable development.

D. INTERNATIONAL RELATIONS

I. India and its Neighborhood - Relations

1. Rohingya Deportation Case

Why in the news?

- The recent oral remarks of the **Supreme Court of India** describing Rohingya refugees as “illegal intruders” have reignited a critical debate on **refugee protection, constitutional values, and India's human rights obligations**.

Who Are the Rohingya and Why They Fled

- The Rohingya are a **stateless ethnic minority** from Myanmar's Rakhine State, denied citizenship under Myanmar's 1982 Citizenship Law.
- The **UN has described Myanmar's actions against the Rohingya as “a textbook case of ethnic cleansing”**, with mass killings, sexual violence, and village burnings since 2017.

- Large-scale violence compelled Rohingya to flee to neighbouring countries, including Bangladesh and India, in search of survival rather than economic opportunity.
- Rohingya refugees crossed borders under life-threatening conditions, not through voluntary migration.

Refugee Law and India's Constitutional Framework

- **Absence of a refugee law:** India is not a signatory to the **1951 Refugee Convention** or its 1967 Protocol, and lacks a domestic refugee statute.
 - Refugee protection in India relies on constitutional interpretation rather than codified law.
- **Refugee status is declaratory, not constitutive:** International refugee law recognises that a person becomes a refugee due to conditions of persecution, not state recognition.
 - Denial of formal recognition does not erase refugee status.
- **Principle of non-refoulement:** Indian courts have repeatedly held that **non-refoulement is implicit in Article 21**, prohibiting return to a place where life or liberty is threatened.
 - Deportation without individual assessment violates this principle.

Constitutional Morality and Equality Concerns

- **Article 21 applies to 'persons', not citizens alone:** The right to life and dignity extends to all individuals within Indian territory.
 - Past Supreme Court judgments have protected the rights of non-citizens under Article 21.
- **Dangerous moral trade-offs:** Invoking poverty among Indian citizens to deny protection to refugees creates a **false binary between citizens' welfare and human rights**.
 - Constitutional justice does not permit exclusion of one vulnerable group to justify neglect of another.
- **Erosion of humanitarian tradition:** India has historically sheltered refugees - Tibetans, Sri Lankan Tamils, Afghans.
 - Selective hostility undermines this legacy.
- **Impact on India's moral leadership:** India has historically projected itself as a champion of the **Global South and humanitarian values**.
- **Radicalisation risk through exclusion:** Systematic dehumanisation may itself create security vulnerabilities.

Way Forward

- **Individualised assessment before detention or deportation:** Blanket categorisation violates due process.
- **Statutory clarity over executive discretion:** India must move from ad hoc executive orders to a **Parliament-enacted refugee law** defining rights, duties, and procedures.
- **Need for a national refugee framework:** A clear legal framework would balance security, humanitarian protection, and administrative clarity.

2. India-Bangladesh Relation

Why in the news?

- A **Parliamentary Standing Committee on External Affairs**, chaired by **Shashi Tharoor**, has described recent developments in Bangladesh as **India's greatest strategic challenge since the 1971 Liberation War**.

Key Highlights of the Parliamentary Standing Committee Report

- **Greatest Strategic Challenge Since 1971:** The Committee describes current developments in Bangladesh as **India's greatest strategic challenge since the Liberation War of 1971**.
 - Unlike 1971's existential humanitarian crisis, the present challenge is subtle yet potentially graver.
 - Threat characterised as **strategic irrelevance rather than military conflict**

- **Fundamental Political Shift in Bangladesh**

- **Collapse of Awami League dominance** marks a turning point: Fall of Sheikh Hasina government on August 5, 2024.
- Emergence of **youth-led nationalism** and new political forces: Formation of the National Citizen Party by student activists.
- **Return of Islamist actors** into mainstream politics: Restoration of electoral registration of Jamaat-e-Islami.

- **External Influence and Strategic Realignment**

- Growing **Chinese and Pakistani influence** in Bangladesh
- Committee warns of **potential realignment away from India**

- **Shelter to Sheikh Hasina: Cautious Endorsement:** Committee notes India's decision to give **refuge to Sheikh Hasina** as appropriate

- **Concerns Over Democratic Inclusiveness**

- **Ban on Awami League's political activities** flagged as problematic
- Committee warns this undermines **inclusiveness and credibility of elections**

- **Ganga Water Treaty Warning**

- **Ganga Water Treaty due for renewal in December 2026:** No bilateral talks initiated with Bangladesh so far.
- Committee recommends **urgent initiation of negotiations** to avoid a post-2026 vacuum.

- **Need for Strategic Recalibration**

- Committee stresses the need for **recalibrated India policy** towards Bangladesh
- Failure to adapt may result in **loss of influence through irrelevance**

Conclusion

The Committee's report highlights that India's challenge in Bangladesh is no longer rooted in security crises but in **political transition, generational change, and shifting strategic alignments**. It calls for **urgent diplomatic recalibration, inclusive engagement, and proactive treaty management** to safeguard India's strategic interests in its eastern neighbourhood.

II. India & World

1. Colombo Security Conclave (CSC)

Why in the news?

On **November 20, 2025**, India hosted the **7th National Security Advisor - level summit of the Colombo Security Conclave (CSC)**, reaffirming its commitment to cooperative security in the **Indian Ocean Region (IOR)**.

Evolution and Significance of the CSC

- **From trilateral to Mini lateral framework:** Initiated in **2011** as a trilateral arrangement between India, Sri Lanka, and the Maldives, the grouping lost momentum due to political transitions and lack of convergence.
- **Reinvigoration under CSC (2020):** The rebranding as the Colombo Security Conclave provided a clearer mandate focusing on **maritime security, counter-terrorism, trafficking, organised crime, and cybersecurity**.
- **Progressive expansion:** Mauritius joined in **2022**, Bangladesh in **2024**, and Seychelles' elevation to full membership in **2025** reflects widening regional buy-in.

Key Outcomes and Signals from the 2025 Summit

- **Seychelles' accession as full member:** Signals consolidation of western Indian Ocean cooperation.

- **Deepening India's neighbourhood engagement:** The CSC offers India a platform to enhance trust-based security ties amid regional volatility.
- **Malaysia's participation as guest:** Hints at possible future expansion beyond immediate littoral states.

The China Factor: Divergent Perceptions

- **India's strategic concern:** India views China's growing naval presence and infrastructure investments in the IOR as a security challenge.
- **Member-states' developmental calculus:** Several CSC members depend on China for infrastructure financing and do not perceive Beijing as a threat.
- **Balancing act for India:** India must advance its security concerns without forcing binary choices on partners.

Way Forward

- **Strengthen institutional mechanisms:** Move towards a light institutional structure for continuity and implementation.
- **Integrate security with development cooperation:** Link maritime security initiatives with blue economy projects.
- **Maintain inclusive and non-confrontational posture:** Ensure CSC remains a cooperative forum, not an exclusionary bloc.

2. India-Russia Partnership

Why in the news?

Russian President Vladimir Putin's visit to India marks an important reaffirmation of a decades-old friendship that has weathered global upheavals.

India's Strategic Balancing Challenge

- **Complex Multipolar Engagement:** India maintains defence ties with Russia while deepening strategic cooperation with the US.
- **Constraints of Strategic Autonomy:** India faces pressure from Western partners over energy imports and defence signalling.
- **Diplomatic Costs for India:** India has abstained on several UN resolutions related to Ukraine.

Russia's Growing Isolation and Its Implications

- **Economic Vulnerability of Russia:** Energy exports are substitutable, forcing Russia to sell oil at heavy discounts.
- **Limits of China's Support:** Suspension of formal payment settlements and reliance on informal channels.
- **Reduced Strategic Value Proposition:** Russia's isolation weakens its ability to act as a balancing power for India.

Why India Cannot Carry the Burden Alone

- **Asymmetry in Diplomatic Costs:** India bears reputational and economic risks to preserve ties.
- **Peace in Ukraine Is Not Enough:** An unfair peace would prolong Russia's isolation and limit economic engagement.
- **Shared Vulnerability to Western Pressure:** A sanctioned Russia and a globally integrated India create asymmetrical risks.

Russia's Criticism of India - US Relations

- **Opposition to the Quad:** Russia has criticised India's participation in the Quad.

- **Ignoring India's China Security Concerns:** India's partnership with the US is driven by China's hostility, not anti-Russia intent.
- **Need for Mutual Strategic Sensitivity:** Russia expects India to accommodate its China ties but does not reciprocate.

What Moscow Must Do to Sustain the Partnership

- **Respect India's Strategic Choices:** Non-interference in India - US relations is essential. Acknowledging Quad as issue-based, not alliance-driven.
- **Reduce the Diplomatic Burden on India:** Actions that ease sanctions and global reintegration. Constructive engagement towards a credible peace in Ukraine.
- **Rebuild Economic Normalcy:** Restoring predictable trade and financial channels.
- **Avoid Strategic Overdependence on China:** Preserving Russia's autonomy strengthens its value to India.

What Measures can India Adopt to Advance its Relations with Russia?

- **Sustained High-Level Political Engagement:** Regular summits and ministerial dialogues to maintain strategic trust.
- **Clear Strategic Communication:** Transparent articulation of India's positions on the Quad, China and the Indo-Pacific.
- **Support Multipolar Institutions:** Deepening cooperation in non-Western forums.
- **Indigenised Defence Collaboration:** Shift from buyer - seller to co-development and co-production.
- **Green Energy Collaboration:** Civil nuclear cooperation beyond Kudankulam.
- **Critical and Emerging Technologies:** Joint R&D in AI, semiconductors and cyber security.
- **Skilled Migration Corridor:** To address Russia's severe demographic decline and labor shortage, India should negotiate a formal, state-backed "Skilled Migration Corridor" focused on the Russian Far East.

Conclusion

India - Russia relations remain strategically significant, but partnerships endure only when **responsibilities are shared**. A stable, reciprocal and realistic relationship - not one sustained by unilateral adjustments - is essential for the future of India - Russia ties in a rapidly evolving global order.

3. India - New Zealand Free Trade Agreement

Why in the news?

- India and New Zealand have **concluded negotiations on a Free Trade Agreement (FTA)**, to be signed in the **first half of 2026**.

Easing access The proposed deal will give duty-free access to a range of domestic goods and includes an FDI commitment of \$20 billion over 15 years New Zealand to get ▪ Duty-free access to goods such as sheep meat, wool, coal and over 95% of forestry and wood articles ▪ Duty concessions on items such as kiwi fruit, wine, seafood, cherries, avocados, persimmons, bulk infant formula, Manuka honey, and milk albumins ▪ No concessions in dairy sector Indian professionals in skilled occupations to get temporary employment entry visa pathway and stay of up to 3 years	 Ties on track: Union Minister Piyush Goyal with New Zealand Minister Todd McClay in New Delhi on Monday. PTI The deal is expected to be signed in the first half of 2026 and aims at doubling bilateral trade to \$5 billion in five years
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Key Features of the India - New Zealand FTA

- **Market Access and Tariff Liberalisation**
 - India to receive **tariff-free access** to New Zealand markets
 - India to remove or cut tariffs on **95% of New Zealand's exports**
- **Protection of Sensitive Sectors (India)**
 - **No tariff concessions** on politically sensitive agricultural and dairy products
 - Explicit safeguarding of **agricultural and dairy farmers' interests**
- **Trade Diversification and Strategic Context**
 - FTA helps Indian exporters **diversify markets** amid **50% tariffs imposed by the U.S.**
 - Strengthens India's **Oceania trade strategy**, complementing the India - Australia pact
- **Sectoral Gains for Indian Economy**
 - Boost to **labour-intensive sectors**: Apparel, leather, textiles, footwear, home décor.
 - Expansion of **manufacturing and technology exports**: Automobiles, auto components, machinery, electronics, pharmaceuticals.
 - Special focus on **MSMEs, start-ups and innovators**: Government emphasis on inclusive export opportunities.
- **Investment Promotion**: Target of **\$20 billion investments over 15 years**
- **Workforce Mobility and Services Trade**
 - New Zealand to offer **5,000 temporary employment visas annually**
 - **Stay up to three years** for Indian professionals: Covered professions include:
 - AYUSH practitioners, Yoga instructors, Indian chefs, Music teachers, IT, engineering, healthcare, education and construction professionals

Benefits for New Zealand

- Duty-free access for goods such as: Sheep meat, Wool, Coal, Forestry and wood products (95%)
- Duty concessions for select items: Kiwi fruit, wine, seafood, cherries, avocados, Manuka honey.
- Access to **India's large and fast-growing market**

Strategic and Diplomatic Significance

- Strengthens **bilateral economic engagement and strategic cooperation**
- Supports India's **Act East and Indo-Pacific economic strategy**
- Reinforces India's image as a **selective yet open trade partner**

Conclusion

The India - New Zealand FTA represents a **balanced trade agreement** that combines **market access, investment promotion, workforce mobility and sectoral protection**.

III. Bilateral, Regional and Global Groupings and Agreements

1. China-United States Exchange Foundation (CUSEF)

Why in the news?

- On November 17 and 18, 2025, Hong Kong hosted the sixth meeting of the China-United States Exchange Foundation (CUSEF), titled 'Circles for Peace'.

Highlights of the Meeting

- **Declining Trust and Inadequate Frameworks:** Traditional approaches such as engagement and guardrails are losing relevance. Strategic anxieties have entered domestic politics shrinking space for moderation and increasing the risk of miscalculation.
- **Erosion of People-to-People Ties:** Declining student exchanges have reduced mutual familiarity especially among younger generations reinforcing adversarial narratives beyond official diplomacy.
- **AI as a Global Public Good:** Artificial Intelligence was identified as too consequential to be monopolised by any single country. Its dual-use nature blurs civilian and military boundaries.
- **Need for International Rules:** Equity transparency and accountability are essential for credible AI governance. Similar frameworks may be required for emerging domains such as outer space.

Hong Kong as a Middle Space

- **Bridge Between Worlds:** Hong Kong's cosmopolitan connectivity and openness enable dialogue when formal geopolitics hardens. Such middle spaces remain vital for global stability.

Lessons for India

- **Preserving Strategic Autonomy:** India must resist rigid alignments or binary choices between major powers. Strategic autonomy remains essential in a fragmented global order.
- **Building Domestic Capabilities:** Strengthening technological manufacturing and institutional capacity enables India to engage externally from a position of resilience.
- **Leveraging Middle Power Diplomacy:** India can work with like-minded middle powers to safeguard global commons such as climate cyberspace and AI governance.
- **Balancing Security and Engagement with China:** India's approach must combine border management and deterrence with selective engagement to prevent escalation.
- **Investing in People-to-People Ties:** Educational cultural and scientific exchanges reduce long-term strategic mistrust and build societal resilience.
- **Norm-Shaping Rather than Norm-Taking:** India should actively shape rules in emerging domains like AI digital governance and space rather than passively adopting external standards.

Conclusion

U.S. - China rivalry will remain turbulent but unmanaged competition risks cascading global crises. For India the lesson lies in capacity-building diversified partnerships and principled autonomy. Middle spaces such as Hong Kong demonstrate that dialogue and cooperation remain possible even amid deep strategic competition.

IV. Important International Institutions, agencies and fora

1. Pax Silica

Why in the news?

- The launch of **Pax Silica**, a new **US-led strategic initiative** aimed at securing global supply chains in **critical minerals, semiconductors, artificial intelligence (AI), energy, and advanced manufacturing**, marks a significant development in geo-economic competition.

What is Pax Silica?

- **Pax Silica** is a strategic framework spearheaded by the United States to build a **secure, trusted, and innovation-driven silicon and AI supply chain**.

- It spans the entire value chain - from **critical minerals and energy inputs** to **semiconductor design, fabrication, packaging, AI infrastructure, logistics, and digital ecosystems**.
- The initiative brings together countries such as **Japan, South Korea, Singapore, the Netherlands, the United Kingdom, Israel, Australia, and the UAE**, which collectively host leading firms and technologies across the global semiconductor and AI ecosystem.

Countering China: Pax Silica understood the backdrop of China's dominance in:

- Processing of **critical minerals and rare earth elements**
- Key segments of the **electronics and manufacturing supply chain**
- Recent Chinese restrictions on **rare earth magnets** disrupted global industries, accelerating Western efforts to diversify supply chains.
- Pax Silica complements earlier initiatives such as the **Minerals Security Partnership (MSP)** and reflects a broader US strategy to build **technology blocs among trusted allies**.

Why is India Absent?

- **Limited semiconductor manufacturing capacity:** While India is strong in **chip design and software**, it lacks large-scale fabrication, advanced packaging, and lithography capabilities.
- **Processing deficit in critical minerals:** India possesses **quartz reserves**, a key input for silicon, but lacks the **high-purity processing capacity** required for semiconductor-grade materials.
- **Incomplete supply chain integration:** Pax Silica countries each occupy critical nodes - the US in design and IP, the Netherlands in lithography, Japan and Korea in materials and fabrication. India is yet to secure such an indispensable niche.
- **Trade and regulatory frictions:** The absence of a concluded **India-US trade agreement** and unresolved differences may also limit India's immediate inclusion.

Strategic Implications for India

- The need to move beyond ambition to **execution in semiconductor manufacturing**
- Scaling up **domestic mineral processing and refining capacity**
- Aligning industrial policy with **global supply chain standards**
- Deepening **technology partnerships** with the US and allied economies

Conclusion

Pax Silica represents the next phase of **technology-driven geopolitics**, where supply chains are instruments of strategic power. India's exclusion underscores existing capability gaps rather than a strategic sidelining.

GENERAL STUDIES - 3

A. INDIAN ECONOMY

I. Indian economy issues relating to planning, mobilization of resources

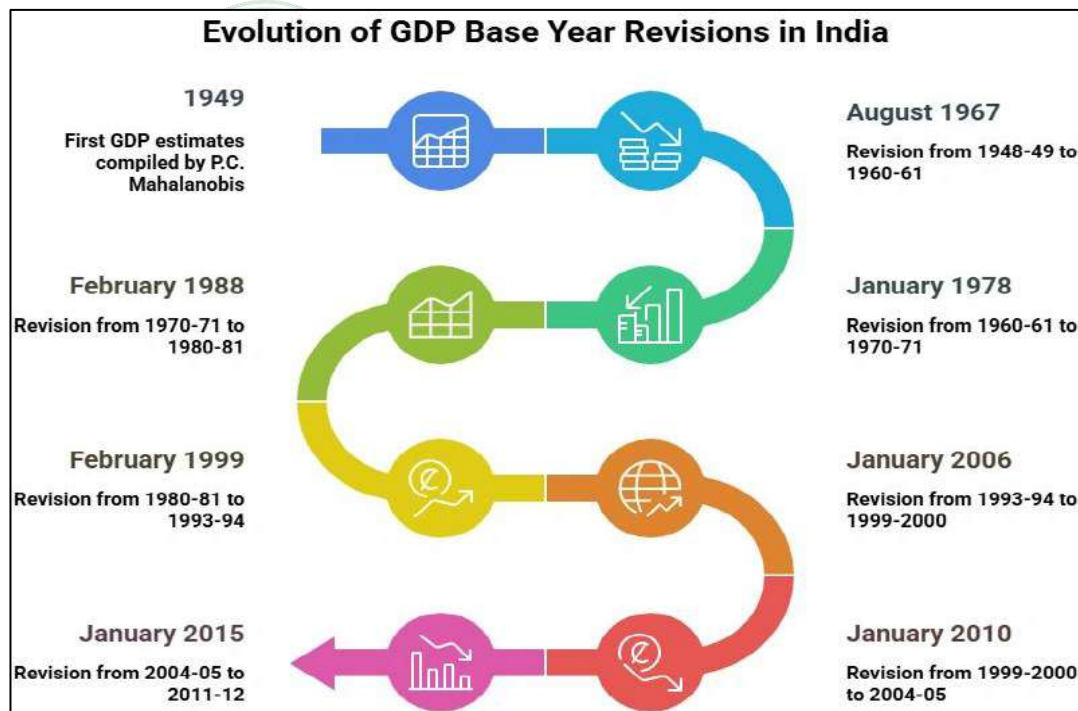
1. Revising India's GDP Framework

Why in News?

- The **Ministry of Statistics and Programme Implementation (MoSPI)** has proposed removing the 'discrepancies' component from India's GDP estimates.

What are Discrepancies in GDP?

- GDP can be measured in two ways: by **production (value added)** or by **expenditure (consumption, investment, exports)**.
- Because of differences in **data sources, valuation methods, and time lags**, the two estimates often do not match.
- This mismatch is recorded as "**discrepancies**" under the expenditure side of GDP.
- A **positive discrepancy** means production GDP is higher than expenditure GDP, while a **negative discrepancy** means expenditure GDP is higher than production GDP.



Why are Discrepancies Problematic?

- Discrepancies make it difficult to identify the **real drivers of GDP growth**, which complicates policy analysis.
- Large discrepancies can result in **major revisions of growth rates** at a later stage.
- For example, in **July - September 2025**, real GDP growth was reported at **8.2%**, but discrepancies amounted to **₹1.63 lakh crore (3.3% of GDP)**.
- In the **post-pandemic years**, discrepancies swung sharply, from **- 3% of GDP (Jan - Mar 2023)** to **+3.3% (Apr - Jun 2023)**, showing instability in estimates.

Proposed Reform - Supply and Use Tables (SUTs)

- The **Ministry of Statistics and Programme Implementation (MoSPI)** plans to integrate **Supply and Use Tables** into national accounts.
- SUTs ensure that **total supply equals total use** for every good and service.
- They map **domestic production and imports** against **consumption, investment, and exports**, creating a balanced framework.
- This reform will help **reduce discrepancies in early estimates** and **eliminate them in final estimates**.

Expert Views

- Economists have welcomed the move, saying it will improve **transparency and credibility** of GDP data.
- Persistent discrepancies in past revisions have **undermined trust** in India's growth numbers.
- However, concerns remain about **outdated surveys** and reliance on **old datasets**, especially in the **services sector and informal economy**.

Way Forward

- India's **large informal economy** makes GDP estimation more complex.
- **Surveys and base year datasets** need to be updated regularly to reflect current realities.
- **Administrative data systems** must be strengthened for **real-time collection** of information.
- **Transparency** is essential so that adjustments do not appear arbitrary.
- India must align its system with **international SNA (System of National Accounts) standards** to improve credibility.

Conclusion

Phasing out discrepancies is a **major statistical reform** that will make India's GDP framework more reliable and policy-relevant. Success will depend on **robust data sources, updated surveys, and transparent practices**. A cleaner GDP framework will help policymakers, investors, and analysts better understand India's growth dynamics.

II. Growth and Development, employment

1. New Labour Codes

Why in News?

- The **four consolidated labour codes, Code on Wages, Code on Social Security, Industrial Relations Code, and Occupational Safety, Health and Working Conditions Code** have been **implemented**, bringing major changes to India's labour law framework.



Background:

- **Fragmented Laws:** 29 separate legislations, many framed in the 1940s - 50s, created overlapping definitions and multiple inspections.
- **Evolving Nature of Work:** The growth of **gig economy, platform work, contract labour, and logistics-based employment** exposed gaps in existing labour protections and coverage.
- **Productivity Needs:** Rigid labour laws were seen as limiting India's competitiveness in global manufacturing.

Key Changes Introduced Through the Four Labour Codes

- **Simplification and Consolidation:** 29 central laws were merged into **4 labour codes**, reducing complexity and duplication.
- **Uniform Wage Definition:** A common definition of wages was introduced, impacting **minimum wages, provident fund, gratuity, and bonuses**.
- **Expanded Social Security:** Coverage extended to **gig workers, platform workers, and unorganised sector workers** through a social security framework.
- **Flexible Industrial Relations:** New provisions allow **easier hiring, retrenchment thresholds, and fixed-term employment**, while retaining dispute resolution mechanisms.

Need for Labour Codes

- **Regulatory Overlap:** Multiple laws complicated compliance and enforcement.
- **Modernisation:** Gig and platform work required new frameworks.
- **Social Security Gap:** Only **7% of workers** had social protection; informal workers remained unprotected.
- **Investment Climate:** Procedural delays in hiring/firing and closures discouraged investors.

Worker Rights

- **Union Concerns:** Fixed-term contracts and retrenchment thresholds may reduce job security.
- **Collective Bargaining:** Only one recognised negotiating union allowed, marginalising smaller unions.
- **Industry View:** Codification ensures predictable rules, reduces litigation, and encourages formalisation.
- **Protection Measures:** Codes extend minimum wage coverage, mandate contracts, and introduce safety norms.

Conclusion

The labour codes success depends on transparent implementation, genuine worker protection, and sustained dialogue with trade unions. A balanced labour ecosystem providing both flexibility for industry and security for workers is essential for inclusive and sustainable growth.

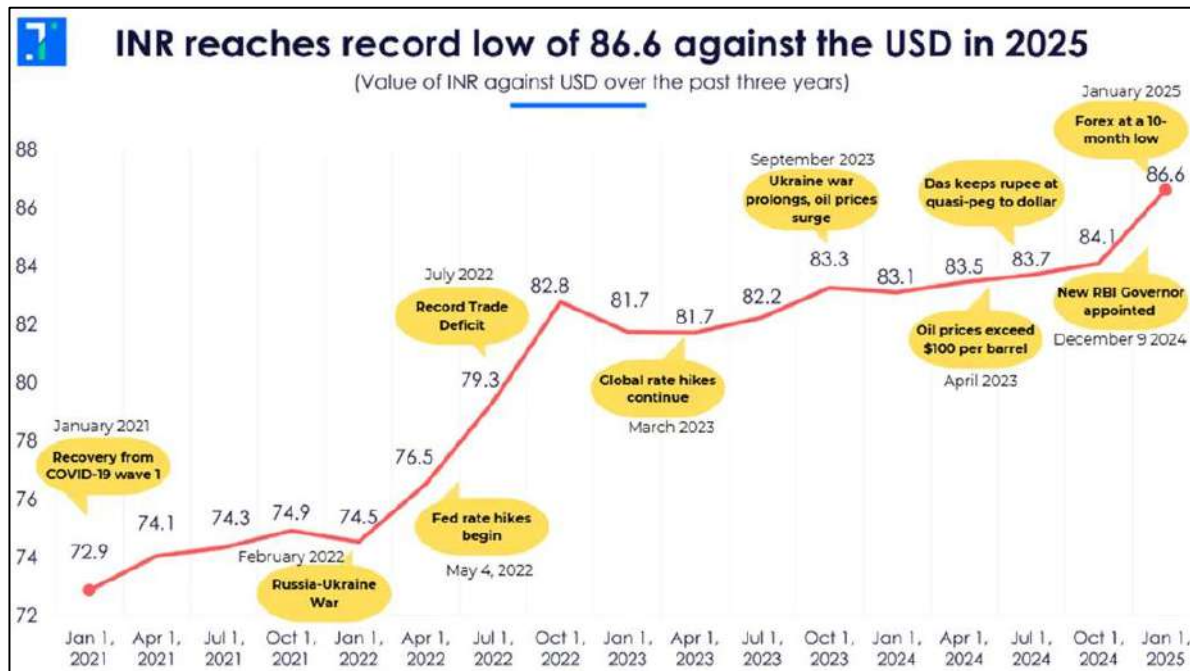
2. Rupee Weakens Against Dollar**Why in News?**

- The Indian rupee has slipped below the **US dollar level**, raising concerns about external vulnerabilities despite stable domestic indicators.

What is rupee depreciation?

- Rupee depreciation means the value of the Indian rupee falls compared to foreign currencies (like the US dollar).
- **Example:** If ₹70 = \$1 earlier, and later ₹80 = \$1, the rupee has depreciated.
- **Cause:** Happens due to factors like higher imports than exports, inflation, global oil prices, or foreign investors pulling money out.

- **Impact:** Makes imports (like oil, electronics) costlier, increases inflation, but can make Indian exports cheaper and more competitive abroad.



Reasons for Rupee Depreciation

- **Dollar Outflows:** Investors are shifting capital to US markets with higher yields.
- **Strong Dollar Index:** The dollar has remained firm globally for over 14 months, hurting emerging currencies.
- **Trade Deficit Expansion:** Exports fell by **11.8% YoY in October** to \$34.4 billion, while imports stayed high.
- **Rising Non-Oil Imports:** Electronics, machinery, and festive demand pushed imports up by **12.4% YoY to \$46.5 billion**.
- **Delayed Indo-US Trade Deal:** Uncertainty has dampened investor sentiment.

Trade Deficit and Currency Movement

- **Merchandise Gap:** Despite lower crude prices, imports of electronics and machinery remain elevated.
- **Export Weakness:** Engineering goods, gems, pharma, and chemicals recorded poor performance.
- **Services Exports:** IT services showed resilience, but global slowdown reduced margins.
- **Oil Imports:** Brent prices eased, but demand stayed strong due to industrial recovery.

Capital Flows and Investor Behaviour

- **Portfolio Withdrawals:** FPIs sold equities worth **₹43,000 crore in two months**.
- **Shift to Safe Assets:** High US yields attract global capital away from India.
- **Domestic Underperformance:** Broader markets failed to sustain earlier highs, reinforcing outflows.

RBI's Stance

- **Limited Intervention:** RBI is not defending a fixed level but smoothing volatility.
- **Managed Float:** Intervention only during sharp swings or external shocks.
- **Preference for Stability:** Gradual depreciation allowed to adjust naturally.

Impacted Sectors

- **Gold Imports:** Weaker rupee raised gold prices; imports rose **21% to 78 tonnes worth ₹56,000 crore**.

- **Electronics & Machinery:** High demand inflated import bills.
- **Petroleum Products:** Despite lower crude prices, import volumes stayed strong.

Way Forward

- **Boost Exports:** Improve logistics and diversify markets to make Indian exports more competitive.
- **Finish Trade Deals:** Conclude pending agreements, especially with the US, to strengthen investor confidence.
- **Cut Import Dependence:** Expand domestic production of electronics and energy inputs.
- **Stabilise Capital Flows:** Encourage long-term FDI and institutional investments.
- **Build Reserves:** Increase forex reserves to guard against external shocks.

Conclusion

The rupee's slide past ₹90 reflects external pressures rather than domestic weakness. Restoring confidence will require stronger exports, trade agreements, and reforms in external sector management, alongside RBI's cautious approach to currency stability.

3. Is India's Growth Rate Sustainable?

Why in News?

- India's GDP grew by **8.2% to ₹84.8 lakh crore**, showing strong post-pandemic recovery momentum. However, the **IMF has given India a "Grade C" rating**, cautioning that structural weaknesses like low private investment, weak exports, and uneven manufacturing could undermine long-term stability.

Drivers of Current Growth

- **Higher GDP Output:** Strong post-pandemic momentum lifted output to ₹84.8 lakh crore.
- **Manufacturing Revival:** Industrial demand and construction sector growth (9.9%) boosted momentum.
- **GVA Expansion:** Agriculture, industry, and services together raised Gross Value Added to ₹83.4 lakh crore.
- **Investment Trends:** Rise in fixed capital formation indicates infrastructure push and capacity building.
- **Consumption Boost:** Fiscal support, rural income growth, and improved sentiment lifted demand.



Sectoral Strengths

- **Industry:** Manufacturing and construction rebounded after years of sluggishness.
- **Services:** Trade, transport, communication, and finance showed resilience.
- **Utilities:** Electricity and related sectors grew by 4% due to higher demand.
- **Exports:** Remain weak, reflecting global slowdown and protectionist trends.

Structural Weaknesses

- **Private Investment:** Despite profits, corporates remain cautious about capacity expansion.
- **Export Competitiveness:** India's exports are not growing fast enough to sustain momentum.
- **Agriculture Stress:** Erratic monsoons and stagnant productivity hurt rural stability.
- **Employment Concerns:** Growth not matched by labour productivity or job creation.
- **Demand Imbalances:** High-income consumption rising faster than mass consumption.

IMF's Red Flags

- **Growth Quality:** Numbers look strong but lack depth in productivity and capital formation.
- **Sustainability Risks:** Fiscal burden and external shocks could derail momentum.
- **Macro Vulnerabilities:** Heavy reliance on domestic demand and weak export engine.
- **Policy Gaps:** Need reforms in taxation, labour markets, and industrial competitiveness.

Global Headwinds

- **Trade Protectionism:** Hurts textiles, electronics, and engineering exports.
- **Geopolitical Tensions:** Disrupt supply chains and raise import costs.
- **Oil Price Volatility:** India's dependence on crude imports makes it vulnerable.
- **Financial Market Risks:** FPI outflows and exchange rate swings affect stability.

GDP GROWTH PROJECTIONS

India's **GDP growth projections** for 2025 remain strong across major international organisations, keeping India the fastest-growing large economy.

Projections

- **IMF (International Monetary Fund):** India's GDP growth for 2025 has been revised upwards to **6.6%**, with expectations it could rise closer to **7%** following robust Q2 performance.
- **World Bank:** The World Bank projects India's economy to expand at around **6.7% in FY25 - 26**, significantly higher than the global average of 2.7%, driven by services and manufacturing.
- **OECD (Organisation for Economic Cooperation and Development):** The OECD raised India's 2025 forecast to **6.7%**, citing strong domestic demand, GST reforms, and supportive monetary and fiscal policies

Conclusion

India's **8.2% growth rate** reflects strong momentum but hides structural fragilities. To make growth sustainable, India must move from cyclical recovery to **structural transformation** - anchored in manufacturing competitiveness, export diversification, resilient agriculture, and stronger private investment.

III. Inclusive growth and issues

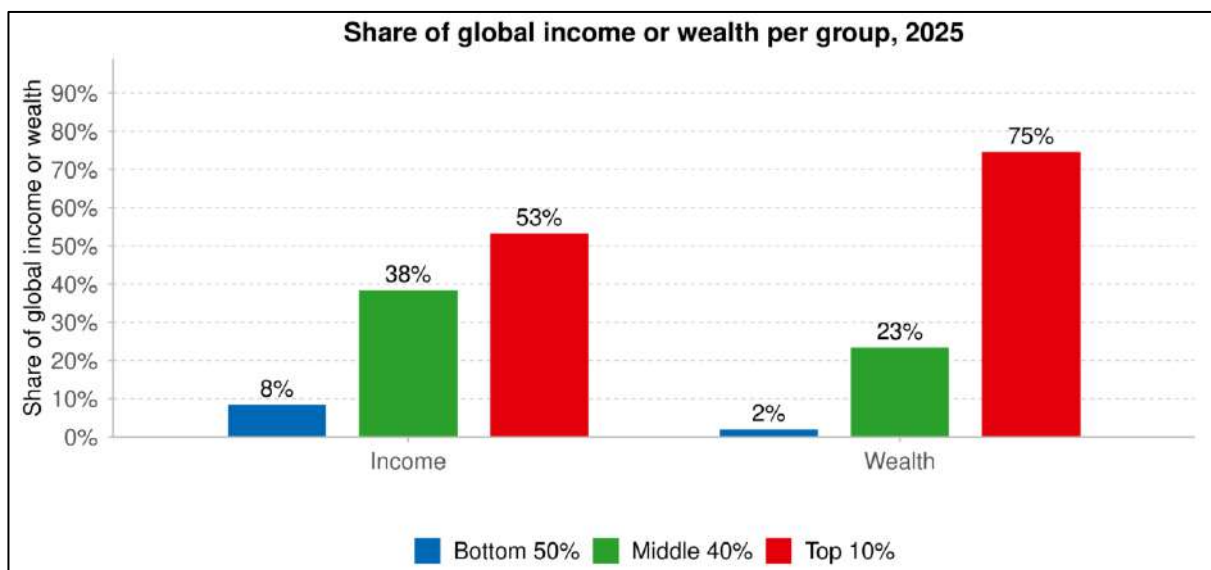
1. World Inequality Report 2026

Why in News?

- The World Inequality Report 2026 has been released, spotlighting growing disparities in income, wealth, gender, and climate both in India and globally.

India's Inequality Profile

- Average Income & Wealth:** Annual income per capita ~6,200 euros (PPP); average wealth ~28,000 euros (PPP).
- Income Inequality:** Top 10% earners capture **58% of national income**, while bottom 50% get only **15%**.
- Wealth Inequality:** Richest 10% hold **65% of wealth**; top 1% alone own **40%**.



Global Inequality Trends

- Ultra-rich dominance:** Top 0.001% (~60,000 people) own wealth equal to three times the bottom 50%.
- Top 10% globally:** Control **75% of world wealth**; bottom 50% own just **2%**.
- Top 1%:** Hold **37% of global wealth**, far exceeding the bottom half combined.

Geographic Shifts (1980 - 2025)

- China:** Large population moved into middle and upper segments of global distribution.
- India:** Lost ground; majority now in bottom 50% compared to middle 40% in 1980.
- Sub-Saharan Africa:** Still concentrated in the lower half globally.

Gender Inequality

- India:** Female labour force participation only **15.7%**, with persistent wage gaps.
- Global:** Women earn **61% of men's wages per hour** (excluding unpaid work); including unpaid labour, this falls to **32%**.
- Regional Shares of Women's Labour Income:**
 - MENA: 16%
 - South & Southeast Asia: 20%
 - Sub-Saharan Africa: 28%

- East Asia: 34%
- Europe/North America: ~40%

Climate Inequality

- **Poorest 50%:** Contribute only **3% of emissions** linked to private capital.
- **Top 10%:** Responsible for **77% of emissions**.
- **Top 1%:** Account for **41% of emissions**, nearly double the bottom 90%.

Reasons Behind Inequality

- **Female Workforce Gap:** Women earn only about **18% of labor income in India**, compared to a global average of **34%**. Their participation rate is below **25%**, far lower than the global average of **51%**.
- **Tax System Inefficiencies:** The **top 1% of Indians hold around 40% of total wealth**, yet taxation on this group remains weak due to loopholes.
- **Wealth Concentration:** The **top 10% capture nearly 58% of national income** and own **65% of wealth**, while the **bottom 50% share just 15% of income**.
- **Global Redistribution Challenges:** Multilateral cooperation is weak, with limited mechanisms to redistribute wealth or address climate inequality worldwide.

Policy Recommendations & Way Forward

- **Progressive Taxation:** Wealth taxes on ultra-rich; close loopholes; strengthen compliance.
- **Gender Equality:** Recognise unpaid care work; expand childcare, skilling, flexible jobs.
- **Redistributive Protection:** Cash transfers, pensions, unemployment benefits for vulnerable households.
- **Global Cooperation:** Stronger multilateral frameworks on taxation, redistribution, and climate.
- **Human Capital Investment:** Free quality education, universal healthcare, nutrition, and childcare.

Conclusion

The **World Inequality Report 2026** shows India and the world facing historic inequality levels. India's decline in global distribution and low female participation highlights structural weaknesses. Achieving **inclusive growth, social justice, and SDGs** will require strong political will, effective governance, and sustained investment in human capital.

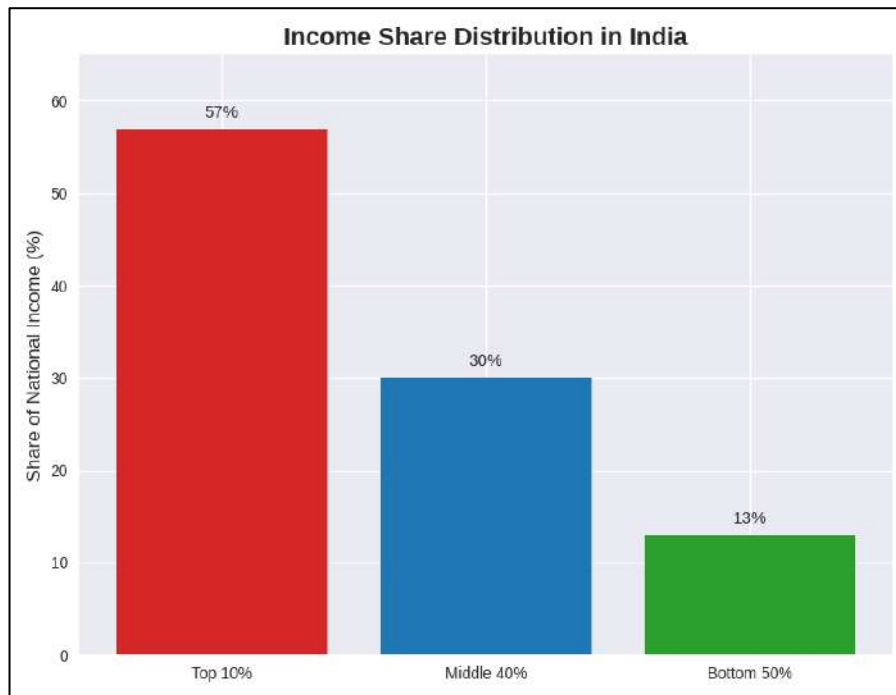
2. Public Education and Economic Growth

Why in News?

- Recently The **World Inequality Report 2026** has highlighted widening global income and wealth gaps in **education and health** across regions, reinforcing disparities.

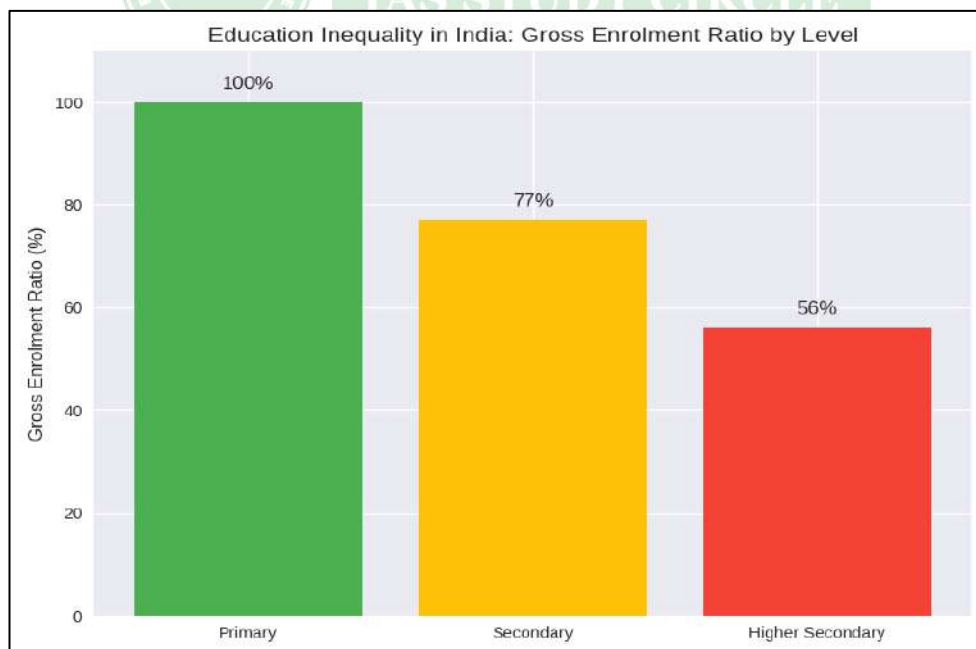
Global Inequality Trends

- The top 10% of income earners receive more than the remaining 90% combined, while the poorest half earns less than 10% of global income.
- Wealth inequality is sharper, with the top 10% owning 75% of global wealth and the bottom 50% holding just 2%.
- Regional divides remain stark: average daily income is €125 in North America & Oceania compared to only €10 in Sub-Saharan Africa.



Why Education Matters in Reducing Inequality

- **Public education** is the most effective tool to narrow early-life gaps and promote social mobility.
- **Free, high-quality schools**, universal healthcare, childcare, and nutrition programs ensure opportunity depends on talent and effort rather than family background.
- **Education helps create** a skilled workforce, raising productivity and innovation across the economy.



Education Spending Gap

- **In 2025, government** spending per school-age individual ranged from €220 in Sub-Saharan Africa to €9,025 in North America & Oceania.
- **This represents a 1:41 gap**, showing how unequal public investment reinforces global inequality.

- **Low-income regions** like South Asia and Sub-Saharan Africa remain underfunded, limiting their ability to break the cycle of poverty.

The Inequality - Education - Growth Nexus

- **High inequality restricts** poor families from investing in education, leading to unequal skill development.
- **Educational inequality** results in inefficient use of human capital, lowering productivity and slowing innovation.
- **This creates a vicious cycle** of inequality and weak growth. Conversely, equitable education spending fuels a virtuous cycle, raising skill levels, boosting productivity, and generating inclusive growth.

Challenges in Education Systems

- **Unequal Access and Benefits:** *Economic Survey 2025* India serves **24.8 crore children** across **14.7 lakh schools** with **98 lakh teachers**, yet **learning outcomes remain uneven**.
- **Marginalised Communities Underserved:** Nearly **50% of students study in government schools**, where infrastructure and teacher shortages are more acute.
- **Inequalities Reinforced Instead of Reduced:** Gross Enrolment Ratio (GER) is **~100% at primary**, but drops to **77.4% at secondary** and **56.2% at higher secondary**, showing inequities in progression.

Conclusion

Inequality is not only about income and wealth distribution but also about access to quality public services. Without substantial and equitable investment in education, disparities will continue to widen. Strengthening public education is therefore essential for **inclusive growth, social justice, and achieving SDG 4**, making it a cornerstone of sustainable economic development.

3. VB - G RAM G Bill 2025 and MGNREGA

Why in News?

- The **Viksit Bharat - Guarantee for Rozgar and Ajeevika Mission (Gramin) Bill, 2025** has been introduced to replace the **MGNREGA, 2005**.

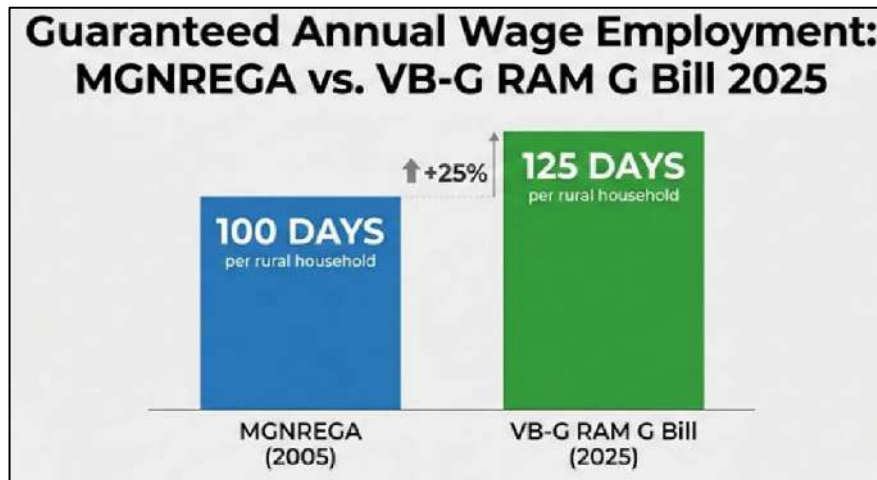
Provisions of the VB - G RAM G Bill

- **Employment Days:** Guarantees **125 days** of wage work per household (earlier **100 days** under MGNREGA).
- **Funding Pattern:** Shifts wage cost to **states**; ratios - **90:10** (NE & Himalayan states), **60:40** (others), **100% Centre** (UTs).
- **Normative Allocation:** Labour budget now **fixed by Centre**; extra spending beyond limit must be borne by **states**.
- **Agricultural Pause:** Mandatory **60-day break** during sowing/harvesting; ensures farm labour but reduces work window.
- **Infrastructure Integration:** Works linked to **Gram Panchayat plans** and merged into **national rural infrastructure**.

Rationale for the Overhaul

- The government believes that **MGNREGA no longer reflects current rural realities**, as poverty has declined and digital access has expanded, but misuse of funds continues.
- In **FY 2024 - 25**, misappropriation of nearly **₹193.67 crore** was reported, and only **7.61% of households** managed to complete the full 100 days of work.

- The new framework is designed to **improve accountability** and ensure that the assets created are of **better quality and long-term value**.



Expected Impact on the Rural Economy

- Expanding the number of guaranteed workdays is expected to **strengthen rural incomes and employment opportunities**.
- By prioritising **water conservation, rural roads, and climate-resilient assets**, the scheme aims to boost agricultural productivity.
- Durable infrastructure will help **reduce distress migration**, allowing workers to find livelihoods locally.
- Digitised planning, payments, and monitoring** will enhance efficiency and transparency in implementation.

Benefits for Farmers

- The statutory pause during sowing and harvesting seasons will ensure **labour availability for critical farm operations**.
- This pause will also help **reduce wage inflation** during peak agricultural periods.
- Improved **irrigation and storage facilities** will reduce post-harvest losses and improve farm productivity.
- Better **rural connectivity** will support farmers by improving access to markets.

Gains for Rural Workers

- Rural households will now receive **125 days of guaranteed employment**, compared to 100 earlier.
- Wages will be **digitally transferred and verified through Aadhaar**, ensuring timely and transparent payments.
- If work is not provided, workers will be entitled to a **mandatory unemployment allowance**.
- Panchayat-led planning** will ensure predictable job availability and the creation of durable community assets like roads and water systems.

Accountability and Monitoring

- The framework introduces **AI-based fraud detection** and **GPS-enabled monitoring** of works to prevent misuse of funds.
- Weekly public disclosure** of scheme data will make implementation more transparent.
- Social audits twice a year** at the gram panchayat level will give communities a direct role in monitoring outcomes.
- Oversight will be provided by **central and state steering committees**, ensuring multi-layered governance.

MGNREGA:

- **Employment Guarantee:** Launched in **2005**, MGNREGA provides **100 days of wage employment per rural household** every year.
- **Rights-Based Scheme:** It is a **legal entitlement**, meaning rural households can demand work and must be provided jobs.
- **Focus on Rural Development:** The programme creates **assets like roads, ponds, and irrigation facilities**, improving village infrastructure.
- **Challenges:** Issues such as **fund misuse, weak monitoring, and poor asset quality** have reduced its effectiveness over time.

Conclusion

The VB - G RAM G Bill 2025 represents a **major restructuring of rural employment policy**. While it promises stronger accountability, better infrastructure, and more workdays, its success will depend on how states manage the increased financial responsibility and whether the rights-based nature of MGNREGA can be preserved under a capped funding model.

IV. Agriculture and allied**1. Seeds Bill 2025****Why in News?**

- The Ministry of Agriculture has introduced the **Seeds Bill 2025**, made registration of all seed varieties compulsory and imposing stricter penalties for violations.

Why India Needs a New Seeds Law

- The current Seeds Act covers only notified varieties; registration is not compulsory.
- Important categories like green manure, plantation crops, and commercial crops remain outside its scope.
- The draft law seeks to replace the outdated **Seeds Act, 1966**, aiming to modernise seed regulation and address the rising problem of spurious seeds.
- Past attempts, such as the **2004 Seeds Bill**, failed to become law, leaving regulatory gaps.

Back With The Bill

Seeds Bill 2004 seeks to regulate seeds, plant material, increase private participation

Early passage of Bill important for doubling farmers' income, says govt official

High-level meeting to discuss the Bill expected in March

Three rounds of inter-ministerial talks already held

All ministries have agreed to major provisions and 5 amendments

Bill was put on hold in 2015 after protests an enabling provision for GM crops

Key Features of Seeds Bill 2025

- **Mandatory Registration:** All varieties (except traditional farmers' seeds and export-only seeds) must be registered after **VCU testing**.
- **Market Controls:** Dealers need state registration; seed packets must carry **QR codes** via a central traceability portal.
- **Accreditation System:** Nationally accredited firms can operate across states without fresh approvals, easing compliance for large companies.
- **Stricter Penalties:** Minor offences attract fines from ₹1 lakh; major offences like selling fake seeds can lead to **₹30 lakh fines and three years' jail**.
- **Farmers' Rights:** Farmers can grow, save, exchange, and sell farm-saved seeds (not under brand names).

Problem of Spurious Seeds

- Complaints of fake and poor-quality seeds are frequent.
- Between 2022 - 25, **43,001 seed samples** were found non-standard out of nearly 6 lakh tested.
- **West Bengal** reported the highest share (62%), followed by Tamil Nadu and Madhya Pradesh.
- Enforcement actions included **12,287 warnings, 12,915 stop-sale orders, 1,914 FIRs, and 164 forfeitures**, showing the scale of the issue.

India's Seed Requirement and Market

- For 2024 - 25, India required **48.20 lakh tonnes** of seeds; availability was **53.15 lakh tonnes**, showing adequate supply.
- The seed market is valued at **₹40,000 crore**.
- Between 2014 - 25, **3,053 new varieties** were released, with the public sector contributing 85% and the private sector 15%.

Concerns Raised

- **Compensation Gap:** Farmers must go to court for crop failure claims; no simple grievance mechanism exists.
- **Community Seed Keepers:** FPOs, women's groups, and traditional seed networks face heavy compliance burdens, risking biopiracy.
- **Corporate Bias:** VCU trials favour uniform hybrids, sidelining indigenous and climate-resilient varieties.
- **Digital Burden:** QR tracking and online submissions may disadvantage small rural seed keepers with limited digital access.
- **Foreign Entry Risk:** Recognition of foreign agencies for testing could allow GM or patented seeds without strong domestic checks.

Way Forward

- **Farmer - Centric Safeguards:** Establish a simple and fast compensation mechanism for crop failures due to faulty seeds, reducing dependence on lengthy court processes.
- **Inclusive Regulation:** Provide exemptions or lighter compliance for community seed keepers, FPOs, and traditional seed networks to protect indigenous varieties and prevent biopiracy.
- **Balanced Oversight:** Ensure strict quality checks and penalties for spurious seeds while maintaining transparency, digital accessibility, and safeguards against corporate or foreign dominance in seed markets.

Conclusion

The **Seeds Bill 2025** is a major step to modernise seed regulation, improve quality, and curb counterfeits. Yet, concerns about farmer compensation, community seed rights, and corporate bias remain. A balanced approach is needed strengthening regulation while safeguarding farmers' interests and India's genetic resources.

V. Industry and Industrial Policies

1. India's Critical Mineral Mission

Why in News?

- India has launched a **rare-earth magnet scheme** and stepped focus on critical minerals to reduce dependent on China's dominance in global supply chains.

India's Dependence on Critical Minerals

- India is **100% import dependent** for lithium, cobalt, and nickel - all vital for EV batteries and renewable energy storage
- Over 50% of India's** critical mineral imports **come from China**, making supply chains highly vulnerable
- Geopolitical & Supply Chain Risks:** Heavy dependence exposes India to global market volatility and geopolitical pressures as competition for critical minerals intensifies worldwide.



Why Processing is Missing

- Mining - Processing Mismatch:** India mines copper, graphite, silicon, tin, titanium, rare earths, and zirconium but lacks refining facilities.
- Import Dependence:** High-purity materials are almost entirely imported despite domestic mining.
- China's Control:** China dominates over 90% of rare-earth processing, battery precursors, and polysilicon, exposing India to supply shocks.

Strategic Concerns of Import Dependence

- Global Frictions:** U.S. - China tech tensions and export controls directly affect India's supply chains.
- Clean Energy Needs:** Solar panels, EV batteries, and storage systems rely on refined minerals India does not process.
- Industrial Resilience:** Imports meet demand but do not build long-term self-reliance.

Steps to Strengthen Domestic Processing

- Centres of Excellence & Innovation:** Nine Centres under the **National Critical Mineral Mission (NCMM)** to drive research in high-purity compounds.

- **Coal Ash Recovery:** 250 million tonnes of coal ash annually can yield gallium, cobalt, germanium, and rare earths.
- **Industrial By-Products:** Aluminium residues contain critical metals; pilot projects by CSIR and IITs underway.
- **Skilled Workforce Development:** New curriculum in hydrometallurgy and pyrometallurgy. Industry - lab partnerships to train technicians and create jobs.
- **De-Risking Investments:** Government procurement guarantees and price stabilisation to attract private players. Strategic stockpiling to stabilise markets.

RARE EARTH MAGNETS

Rare earth magnets are the strongest type of permanent magnets, made from alloys of rare-earth elements such as neodymium and samarium. They produce much stronger magnetic fields than ordinary magnets and are widely used in modern technology.

- **Composition:** Made from rare-earth elements like **Neodymium (Nd)** and **Samarium (Sm)** combined with other metals.

Rare Earth Magnet Scheme (₹7,280 crore):

- **Main Goal:** Cut India's dependence on China for permanent magnets used in electric vehicles, wind turbines, and defence equipment.
- **Integration:** The scheme covers the entire chain - from refining rare earths to manufacturing finished magnets.
- **Incentives:** Special support for producing two key types of magnets - **NdFeB (Neodymium-Iron-Boron)** and **SmCo (Samarium-Cobalt)**.
- **Partnerships:** Encourages collaboration with global technology leaders to bring advanced know-how into India.

Conclusion

India's mineral mission will succeed only if **domestic refining and processing capacity** grows alongside mining. Closing this midstream gap is crucial for clean energy, semiconductor manufacturing, and defence preparedness. Building a resilient mineral-processing hub will decide whether India becomes a global rule-maker or remains resource-dependent.

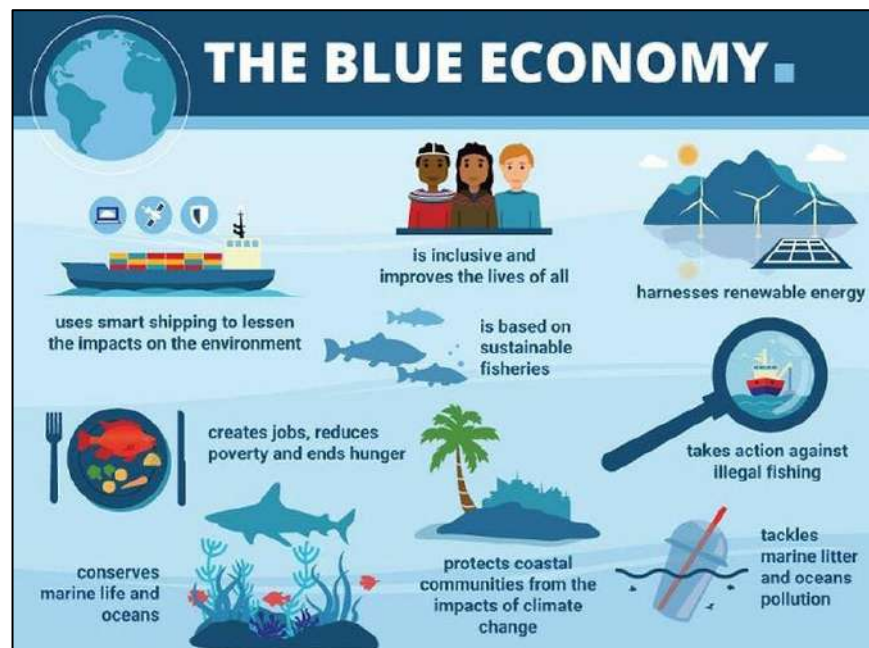
2. The Indian Ocean as Cradle of a New Blue Economy

Why in News?

- Recently The **BBNJ Agreement (2023)** Biodiversity Beyond National Jurisdiction and UN Ocean Conferences have renewed global attention on ocean governance, with India highlighted for its role in shaping a Blue Economy framework.

India and the Emerging Blue Economy

- The **Indian Ocean** has historically been central to global trade and civilizations. India now holds both the **responsibility and opportunity** to lead in ocean governance.
- India was an early advocate of the "**common heritage of mankind**" principle, shaping UNCLOS.
- Current challenges include **climate change, biodiversity loss, and unregulated exploitation of marine resources**.
- The new **Blue Economy paradigm** emphasizes sustainability, resilience, livelihoods, and maritime security for inclusive growth.



What is the Blue Economy?

- **Sustainable Ocean-Based Growth:** Combines economic use of marine resources with conservation.
- **Human-Ocean Balance:** Aligns trade, livelihoods, and development with ecological limits.
- **Global Commons Approach:** Collective governance instead of unilateral exploitation.

BBNJ Agreement (2023)

- Adopted in **June 2023** under UNCLOS as the third implementing agreement.
- Focuses on conserving and sustainably using marine biodiversity in **areas beyond national jurisdiction (high seas and deep seabed)**.
- Covers nearly **two-thirds of the ocean**, which faces threats from climate change, pollution, and overfishing.
- Built around **four pillars**: marine genetic resources, area-based management tools, environmental impact assessments, and capacity building/technology transfer.

Pillars of India's Blue Economy Approach

- **Stewardship:** Ecosystem restoration, tackling IUU fishing, and positioning India as trustee of ocean health.
- **Resilience:** Climate adaptation, regional cooperation, and support for small island states.
- **Inclusive Growth:** Green shipping, offshore renewables, marine biotechnology, and coastal employment.
- **Financing Transition:** \$8.7 billion mobilised globally; India must align public-private investments with MDBs and philanthropy.
- **Security Through Sustainability:** SAGAR doctrine links maritime security with growth and ecosystem protection.

How Blue Economy Differs from Past Approaches

- **From Extraction to Stewardship:** Focus on biodiversity protection and regulated use.
- **From Sectoral Growth to Integrated Planning:** Shipping, fishing, energy, and tourism linked through ecosystem-based frameworks.
- **From Security-Centric to Sustainability-Centric Oceans:** Maritime security now includes climate resilience and ocean health.
- **From Short-Term Gains to Intergenerational Equity:** Long-term resilience embedded in governance.

Challenges

- **Enforcement & Monitoring:** Vast high seas make compliance and policing difficult.
- **Funding & Capacity:** Developing nations need financial and technical support to participate effectively.
- **Balancing Interests:** Reconciling conservation with economic activities like fishing, shipping, and seabed mining is complex.

Conclusion

The Indian Ocean is evolving from a **strategic theatre** to a **global commons** where sustainability, climate resilience, and inclusive growth intersect. India's leadership, grounded in UNCLOS principles, the BBNJ framework, and the SAGAR vision, positions the **Blue Economy** as a pathway to secure oceans through cooperative governance and resilient ecosystems.

VI. Financial markets**1. India's New Savings Trend and Investor Risks****Why in News?**

- Recently India's capital markets are shifting as household savings and retail investors take the lead over FIIs, reducing reliance on volatile global capital.

Household Savings and Market Stability

- **Shift in Savings & Investments:** India's financial landscape is evolving, with households channeling more savings into capital markets.
- **Rise of SIPs:** Monthly **Systematic Investment Plan (SIP)** inflows crossed **₹20,000 crore in 2025**, showing strong retail participation.
- **Mutual Fund Growth:** Mutual fund investors now number over **4 crore active SIP accounts**, making domestic investors a stabilising force in equity markets.
- **Reduced Dependence on FIIs:** Domestic inflows are increasingly offsetting foreign institutional investor (FII) volatility, strengthening market resilience.

Domestic Investors as Market Anchors

- **Decline in FPI Ownership:** Foreign portfolio investor (FPI) share has fallen to a 15-month low.
- **Rise of Domestic Participation:** Mutual funds and retail investors now account for nearly **19% of equity markets**, the highest level in two decades.
- **SIP Strength:** Consistent SIP inflows are helping absorb volatility, reflected in the **stable performance of the NIFTY 50**.

Policy Impact - RBI's Greater Flexibility

- **Reduced Rupee Pressure:** With domestic inflows replacing volatile foreign capital, the RBI faces less strain in defending the rupee.
- **Macro Stability:** Record-low inflation and strong household savings give the RBI more room to balance growth with inflation control.
- **Policy Comfort:** This shift provides greater stability, though it hinges on sustained investor confidence.

Hidden Risks in India's Market Boom

- Household sentiment is volatile, leaving new investors exposed to sudden downturns.

- This year saw **71 IPOs raising ₹1 lakh crore**, with total investments of **₹32 lakh crore (↑39%)**, nearly **70% driven by the private sector**.
- Big IPOs like **Nykaa, Mamaearth, and Lenskart** carry steep valuations, heightening risks of retail overexposure.
- Most fund managers struggle to outperform markets once risk and fees are factored in.
- Household equity wealth declined by **₹2.6 lakh crore**, with gains concentrated among higher-income groups.

Way Forward

- **Correct Access Asymmetry:** Promote passive, low-cost investment vehicles; reduce fees; improve investor awareness.
- **Strengthen Governance:** Ensure falling promoter holdings reflect healthy capital raising, not opportunistic exits.
- **Inclusive Participation:** Use granular data to bring women and underrepresented groups into the financial mainstream.
- **Institutional Integrity:** Move beyond fund mobilisation to building trust, transparency, and financial literacy.

Conclusion

India's new savings trend offers a strong domestic foundation for market stability. Yet, without safeguards, valuation risks, unequal access, and fragile investor confidence could undermine inclusive growth. The path forward lies in **deepening financial literacy, strengthening governance, and ensuring fair participation** to make markets resilient and equitable.

VII. Trade and External sector

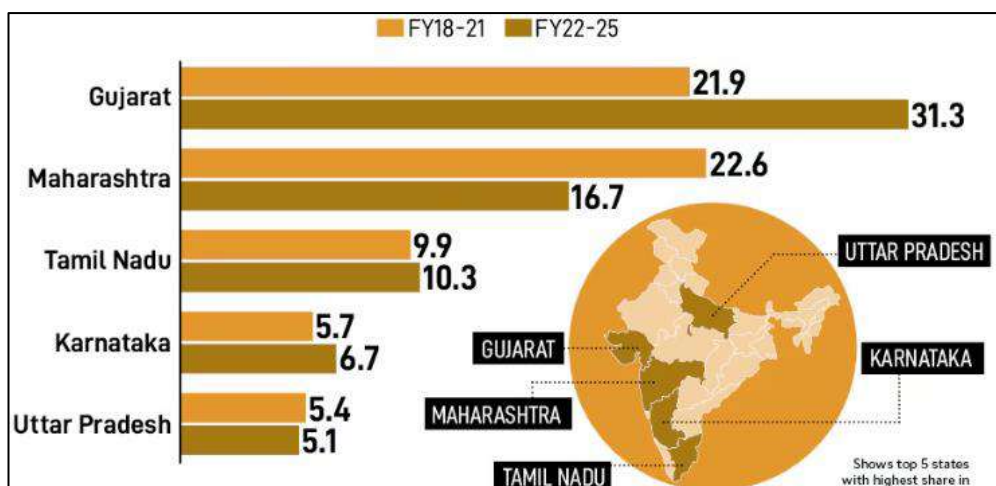
1. India's Export Concentration Across States

Why in News?

- Recent RBI data shows that India's **export growth is concentrated in a few States**, raising concerns about **regional imbalance**.

Overview of Export Performance

- At the national level, India's exports appear **robust**, even with a weakening rupee.
- A closer look reveals that **export growth is uneven across States**, with only a handful driving most of the gains.
- According to the **RBI Handbook of Statistics on Indian States (2024-25)**, a small group of States contributes a **disproportionate share** of total exports.



Export Concentration in Few States

- Five States - **Maharashtra, Gujarat, Tamil Nadu, Karnataka, and Uttar Pradesh** - together account for nearly **70% of India's exports**.
- Their share has risen from **65% five years ago**, showing a steady increase in concentration.
- This reflects a **core-periphery pattern**, where coastal and industrially advanced States integrate into global supply chains, while northern and eastern regions remain marginalised.
- The rising **Herfindahl-Hirschman Index (HHI)** signals growing **regional imbalance** rather than convergence.

Structural Reasons for Divergence

- **Global trade dynamics** have shifted: low-skill, labour-intensive manufacturing is no longer the main path to development.
- Export-leading States benefit from **dense industrial ecosystems, logistics, skilled labour, and financial depth**, reinforcing agglomeration.
- **Hinterland States** face deficits in **infrastructure, human capital, and institutional capacity**, limiting their entry into global value chains.

Shift Towards Capital-Intensive Exports

- India's exports are becoming **capital-intensive** rather than **labour-absorbing**.
- Data from the **Annual Survey of Industries (2022-23)** shows fixed capital investment grew by **10%**, while employment rose only **7%**.
- **Capital per worker** has increased, meaning exports generate value without proportional job creation.
- This breaks the traditional link where exports absorbed surplus agricultural labour into manufacturing.

Employment Outcomes

- The **Periodic Labour Force Survey (PLFS)** shows manufacturing employment stagnating at **11.6 - 12%**, despite record exports.
- Employment elasticity of exports has **collapsed**, with most new jobs concentrated in **electronics hubs** like Tamil Nadu and Noida.
- **Wage share in Net Value Added** has declined, showing productivity gains benefit capital more than workers.

Financial and Institutional Constraints

- Export-leading States have **Credit-Deposit ratios above 90%**, ensuring local recycling of savings.
- States like **Bihar and eastern Uttar Pradesh** have ratios below **50%**, leading to capital outflow.
- This creates a **vicious cycle** where weaker States lose capital, fail to build industrial capacity, and remain excluded from export growth.

Rethinking Exports as a Development Metric

- Evidence suggests exports are now an **outcome of prior development**, not a driver of it.
- States export because they already have **industrial strength and institutional depth**.
- Policy must avoid treating export growth as a proxy for **inclusive development**, and instead focus on **employment generation, regional equity, and human capital**.

Conclusion:

India's export growth is increasingly concentrated in a few advanced States, reflecting structural imbalances in regional development. Ensuring inclusive growth will require stronger infrastructure, financial depth, and industrial capacity in lagging regions.

B. ENVIRONMENT

I. Biodiversity and conservation

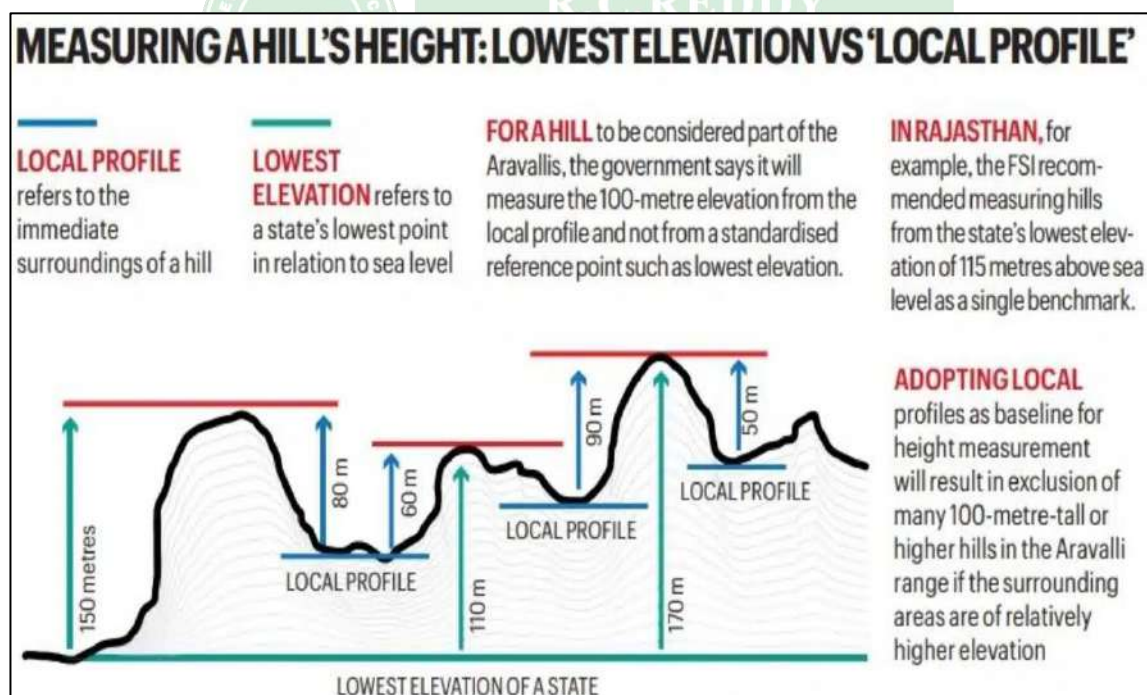
1. Balancing Development and Ecology in Aravallis

Why in News?

- In November 2025, the Supreme Court approved a revised definition of the Aravalli Hills based on local elevation benchmarks, replacing earlier slope-based criteria used for environmental protection.

Aravalli Hills Definition Issue

- FSI Method** Required **minimum elevation of 115 m in Rajasthan + slope of at least 3°** to classify landforms as Aravalli Hills.
- Supreme Court Committee (2024)** asked the Environment Ministry to frame a single, clear definition of the Aravalli's for protection.
- Supreme Court Judgment (2025)** Adopted the **MoEFCC's proposal** that hills are defined as landforms rising **≥100 m above local terrain**, including slopes and adjoining areas.
- Key Change:** The **slope criterion (3°)** used by the Forest Survey of India was **removed**. The Court relied only on **height above local profile**, which critics argue drastically reduces recognised coverage.
- CEC Objections:** The Central Empowered Committee opposed dilution, insisting the **FSI definition** be retained to safeguard ecology.



Impact of Supreme Court's New Aravalli Judgment

- Shrinking Coverage:** New 100-metre elevation rule may exclude most Aravalli areas earlier recognised.
- Mining Loopholes:** Opens scope for legal/illegal mining and construction in fragile zones.
- Ecological Risks:** Loss of protection raises desertification, groundwater depletion, and biodiversity threats.
- Public Backlash:** Triggered protests and campaigns warning of damage to NCR's air and water security.

Importance of Protecting Aravalli's

- **Barrier against desertification:** The Aravallis stop the Thar Desert from advancing eastward, protecting fertile plains and agricultural zones in Haryana and NCR.
- **Water security:** Their forested slopes aid groundwater recharge, sustaining aquifers that supply drinking water to millions in Rajasthan, Haryana, and Delhi.
- **Biodiversity support:** The range hosts leopards, hyenas, and diverse bird species, acting as wildlife corridors while supporting pastoral and tribal livelihoods.
- **Climate buffer:** Dense vegetation absorbs carbon, moderates extreme temperatures, and influences monsoon winds, reducing urban heat stress in Delhi - NCR.

Major Threats to Aravallis

- **Illegal Mining:** Widespread stone and sand mining in areas like Alwar and Gurugram has damaged ecosystems.
- **Urban Encroachment:** Expansion of Delhi and Gurugram has led to deforestation and construction inside eco-sensitive zones.
- **Deforestation:** Large-scale tree cutting for real estate and infrastructure projects has reduced forest cover.
- **Pollution & Waste Dumping:** Quarry debris and waste burning near NCR have degraded soil and air quality.

Governance Challenges in Protecting the Aravalli Hills

- **Regulatory dilution:** Changing definitions of the Aravalli range created ambiguity over which areas require protection.
- **Administrative neglect:** State authorities allowed illegal mining and construction despite environmental laws and Supreme Court orders.
- **Weak institutions:** Monitoring of mining leases, clearances, and land-use changes remained ineffective. Laws like MMDR Act and EIA Notification were poorly enforced.
- **Constitutional duties ignored:** Obligations under Article 48A (environmental protection) and Article 21 (right to life) were poorly implemented.

Way Forward

- **Uniform protection:** Declare Aravallis an ecologically sensitive landscape with clear standards.
- **Tech-enabled monitoring:** Use satellite surveillance and real-time reporting systems.
- **Strict accountability:** Impose penalties and fix responsibility on officials violating laws.
- **Alternative livelihoods:** Promote eco-tourism, afforestation, and green jobs for local communities.
- **Participatory conservation:** Involve Gram Sabhas and local stakeholders in protection efforts.
- **Climate-aligned planning:** Integrate conservation with long-term sustainability and resilience goals.

Indian Initiatives to Protect Hills and Ecology

- **Forest Conservation Act, 1980** - Regulates diversion of forest land for non-forest use, ensuring legal safeguards for hill and forest ecosystems.
- **Green India Mission** - Promotes afforestation and ecological restoration to enhance carbon sinks and protect fragile landscapes.
- **Eco-Sensitive Zones (ESZs)** - Declared around protected areas to restrict mining, construction, and other harmful activities in hill regions.
- **National Afforestation Programme** - Focuses on regenerating degraded forest and hill areas through community participation and sustainable practices.

ARAVALLI HILLS:

The Aravalli Range stretches about 690 km across Gujarat, Rajasthan, Haryana, and Delhi in a southwest - northeast direction.

- **History:** It is one of the **oldest fold mountain ranges in the world**, formed during the Precambrian era, and is now highly eroded and broken.
- **Importance:** The Aravallis act as a **natural barrier** preventing the Thar Desert from spreading eastward, help in **groundwater recharge**, and support biodiversity.
- **Regional Role:** They moderate climate in north-west India, influence monsoon winds, and provide minerals like copper, zinc, marble, and limestone.

Conclusion:

Protecting the Aravalli Hills is essential to India's ecological security, water sustainability, and climate resilience. Without strict enforcement and participatory conservation, short-term exploitation will irreversibly damage this ancient natural shield.

2. India To Upgrade Its Biosecurity Measures**Why in News?**

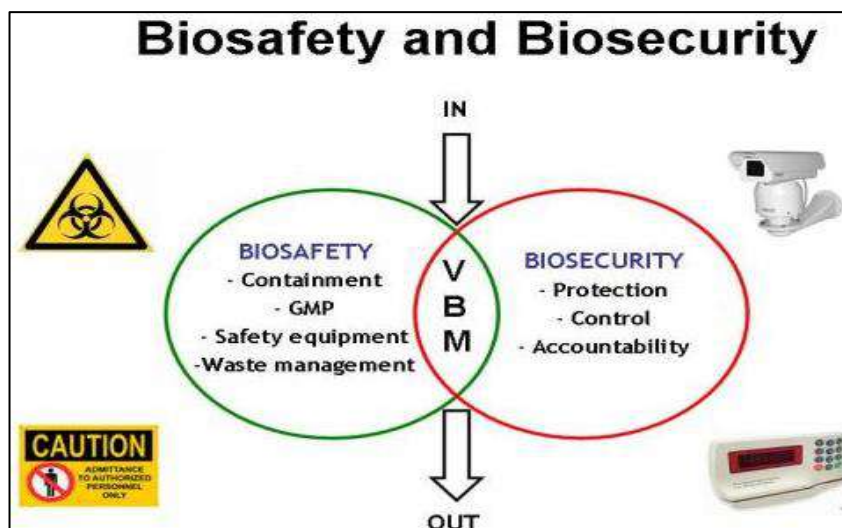
- India's growing biotechnology sector and recent reports of deliberate misuse of biological agents have raised concerns about whether the country's current biosecurity framework is adequate.

What is Biosecurity?

- Biosecurity means **institutional and regulatory measures** to stop the **intentional misuse** of biological agents, toxins, or technologies.
- It is different from **biosafety**, which deals with **accidental release** of pathogens.

Why it Matters for India

- India has a large **agricultural base** and is vulnerable to threats like crop pathogens or livestock diseases.
- Example: The **2001 anthrax attacks in the US** showed how biological agents can be misused deliberately.
- India's biotechnology sector is growing fast - valued at **USD 80 billion in 2023**, projected to reach **USD 150 billion by 2025** - making strong governance essential.



Global Norms and India's Position

- The **Biological Weapons Convention (1975)** prohibits the development, use, and stockpiling of biological weapons.
- It was the first global treaty banning an entire category of weapons of mass destruction.
- However, the convention lacks a verification mechanism, making strong national biosecurity systems essential.

Drivers of Biosecurity Risks in India

- India's porous borders and ecological diversity make cross-border pathogen transmission easier.
- Heavy dependence on agriculture increases vulnerability to agro-terrorism and livestock disease outbreaks.
- High population density magnifies the impact of biological incidents on public health.
- Non-state actors pose risks, as seen in reported cases of ricin toxin preparation.

Role of Emerging Biotechnologies

- Biotechnology tools have a **dual-use nature**, enabling legitimate research but also lowering barriers for misuse.
- Genetic manipulation technologies are now accessible beyond state laboratories.
- This diffusion increases the probability of low-cost but high-impact biological incidents.

India's Current Biosecurity Architecture

- The **Department of Biotechnology** oversees research governance and laboratory safety.
- The **National Centre for Disease Control** manages disease surveillance and outbreak response.
- The **Department of Animal Husbandry and Dairying** monitors livestock biosecurity.
- The **Plant Quarantine Organisation of India** regulates agricultural imports and exports.
- Legal frameworks include the **Environment (Protection) Act, 1986** and the **WMD and Delivery Systems Act, 2005**.

Challenges in India's Biosecurity Measures

- **Fragmented Institutional Framework:** Multiple agencies (DBT, NCDC, Animal Husbandry, Plant Quarantine) work in silos, leading to coordination gaps.
- **Limited Surveillance Capacity:** India has over **1.3 billion people** but disease surveillance networks remain under-resourced.
- **Agricultural Vulnerability:** Heavy dependence on agriculture makes India prone to **agro-terrorism** and crop/livestock diseases.

Conclusion

Upgrading biosecurity is therefore not only a scientific or public health necessity but also a **national security imperative**, requiring coordinated regulation, intelligence integration, and sustained institutional preparedness.

II. Environmental pollution

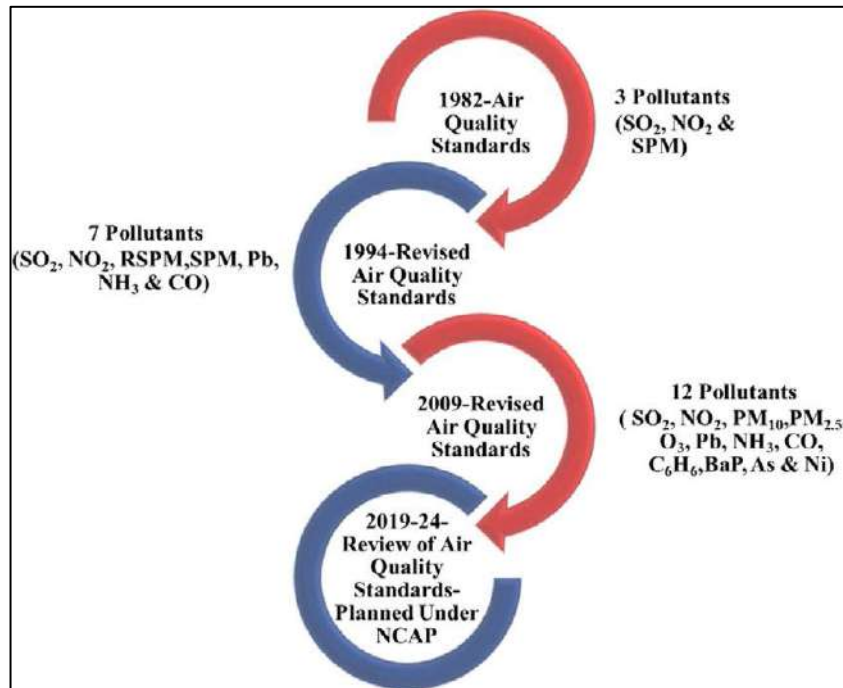
1. India's Air Pollution Framework

Why in News?

- A recent study flagged that India's air pollution framework still prioritises **PM10 over PM2.5**, creating a gap between monitoring focus and actual health risks.

Air pollutants Monitoring Gap

- Air pollution in India is now a **structural public health emergency**, not just a seasonal issue.
- Global best practices use **health-based standards**, but India's system still prioritises **PM10** for ease of monitoring.
- This bias weakens efforts to cut the **disease burden** and distorts progress under the **National Clean Air Programme (NCAP)**.
- **NCAP target:** reduce particulate pollution by **20 - 30% by 2024**.
- **Data:** Delhi's PM_{2.5} levels often exceed **100 µg/m³**, far above India's limit of **60 µg/m³** and the **WHO guideline of 15 µg/m³**.



Scientific Hierarchy of Harm

- **PM_{2.5} Toxicity:** Fine particles penetrate deep into lungs and bloodstream, causing heart and respiratory diseases.
- **PM₁₀ Characteristics:** Larger particles, less harmful, limited systemic penetration.
- **Policy Mismatch:** Focus remains on PM₁₀ though PM_{2.5} is the bigger health risk.
- **Outcome:** Pollution control metrics misaligned with actual disease burden.

Regulatory Bias Towards PM10

- **Monitoring Focus:** NCAP tracks PM₁₀ reduction as the main success indicator.
- **Administrative Ease:** PM₁₀ reduction easier to show through road sweeping, dust control, and construction checks.
- **Institutional Incentives:** Authorities prefer pollutants that show quick compliance.
- **Policy Consequence:** PM_{2.5} receives less planning, funding, and enforcement.

Geography and Urban Amplifiers

- **Delhi's Topography:** Plateau location restricts dispersion.
- **Winter Inversion:** Traps pollutants near the ground.
- **Regional Inflows:** Pollution from neighbouring states adds to local emissions.
- **Result:** Persistent PM_{2.5} accumulation beyond city-level control.

International Pathways vs India

- **China:** Shifted focus to PM_{2.5} after public health pressure; upgraded fuel standards.
- **Mexico & Poland:** Adopted health-based standards after civil society and judicial interventions.
- **Common Feature:** Strong national regulation and health-centric standards.
- **India's Contrast:** Fragmented authority, weak enforcement, delayed evolution.

Institutional and Monitoring Gaps

- **SPCBs:** Understaffed and resource-poor.
- **Monitoring Load:** Same engineers handle air, water, and waste compliance.
- **Outsourcing:** Reliance on private agencies creates conflicts of interest.
- **Data Deficit:** Limited real-time PM_{2.5} monitoring; cities show PM₁₀ compliance while PM_{2.5} remains hazardous.

Policy Instruments - Limited Impact

- **Smog Guns:** Symbolic, little effect on PM_{2.5}.
- **Construction Controls:** Reduce PM₁₀, marginal effect on PM_{2.5}.
- **Road Dust Management:** Visibility-driven, limited health outcomes.
- **Structural Failure:** Lack of source-specific targeting for fine particulates.

Conclusion

India's air pollution strategy suffers from **misaligned priorities and weak institutional design**. By focusing on PM₁₀, policymakers risk managing visibility rather than mortality. A decisive shift toward **PM_{2.5}-centric regulation, health-based standards, stronger monitoring, and institutional accountability** is essential to reduce disease burden and achieve meaningful air quality improvements.

2. Parliamentary Panel's on Delhi's Air Pollution

Why in News?

- A recent report by the **Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change** has highlighted the urgent need to strengthen India's response to Delhi-NCR's air pollution crisis.

Delhi NCR Air Pollution

- **Severe Pollution Levels:** In winter 2023, Delhi's average **PM_{2.5} concentration crossed 250 µg/m³**, over **16 times the WHO safe limit (15 µg/m³)**.
- **Major Sources:** Vehicular emissions, industrial activity, stubble burning in neighbouring states, and Transport contributes nearly **40% of PM_{2.5} emissions** in Delhi.
- **Health Impact:** A Lancet study estimated **1.67 million deaths in India in 2019** were linked to air pollution, with Delhi NCR among the worst affected.
- **Policy Response:** The **National Clean Air Programme (NCAP)** aims to reduce particulate pollution by **20 - 30% by 2024**, but progress remains uneven.

Recommendations to Tackle Delhi NCR's Air Pollution

Vehicular Emission Standards

- The panel urged a **review of India's emission norms** to align with **Euro-VI global standards**.
- India's plan for **20% ethanol blending by 2025** may raise **NO_x emissions** and fuel vapour pollution.

- **Suggested measures:** Stricter evaporative emission standards and mandatory advanced control systems (onboard diagnostics, vapour recovery units).
- **Impact:** Vehicular pollution is linked to **30,000+ premature deaths annually** in Delhi NCR.

Promoting Electric Vehicles (EVs)

- EV adoption remains slow despite policy support.
- **Recommendations:** Cheaper/free parking for EVs, tax benefits on EV loans, and higher parking charges for petrol/diesel vehicles.
- **Consideration:** An annual cap on non-EV registrations in Delhi NCR.

Air Purifiers in Public Institutions

- Vulnerable groups like **children and patients** face the highest exposure risks.
- **Recommendation:** Mandatory air purifiers in schools, hospitals, and government offices.
- **GST on air purifiers** seen as monetising public health failure; panel suggested reducing or abolishing GST.

Revising National Ambient Air Quality Standards (NAAQS)

- India's NAAQS were last updated in **2009** and lag behind **WHO benchmarks**.
- Recommendation: Install **pollution control devices in all thermal power plants within 300 km of Delhi NCR**.
- Delhi's PM_{2.5} must fall by **62% to meet Indian norms** and by **95% to meet WHO standards**.

Tackling Stubble Burning

- Stubble burning remains a **seasonal driver of pollution** in North India.
- Concern: Farmers are evading **satellite detection of crop fires**.
- Recommendation: Launch a **high-resolution ISRO satellite for 24×7 monitoring**, integrated with farm records for real-time enforcement.

Holistic Air Quality Management

- No single measure can solve Delhi's pollution crisis.
- A **coordinated approach** is needed: stricter emission control, technological innovation, regulatory reforms, and behavioural incentives.
- Addressing systemic issues in **transport, energy, agriculture, and urban planning** will align Delhi NCR with **global best practices**.

Challenges:

- **Weak Enforcement** - Regulations exist but monitoring and compliance are inconsistent, especially for vehicles and industries.
- **Agricultural Practices** - Stubble burning remains widespread due to low-cost convenience and limited adoption of alternatives.
- **Infrastructure Gaps** - Limited public transport, slow EV adoption, and inadequate pollution-control technology in power plants.
- **Coordination Issues** - Multiple agencies work in silos, making it hard to implement a unified, long-term air quality strategy.

Conclusion

Delhi-NCR's air pollution crisis requires urgent and multi-sectoral action. The parliamentary panel's recommendations highlight the need for **stricter standards, cleaner technologies, and coordinated governance**. Implementing these measures can protect public health, reduce environmental damage, and move India closer to sustainable urban development.

3. Right To a Healthy Environment in India

Why in News?

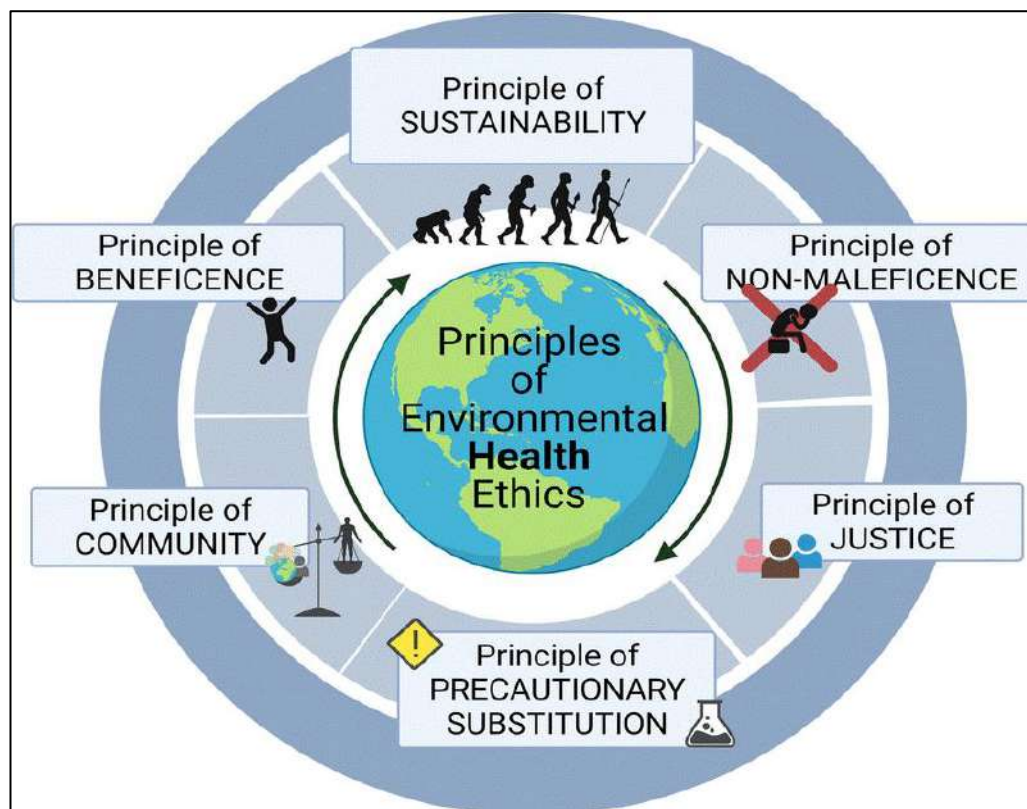
- Rising **air pollution in Delhi-NCR** has revived the debate on recognising the **right to a healthy environment** as an explicit constitutional right.

Environmental Degradation and Public Health

- India faces recurring **environmental crises**, especially in winter, when Delhi-NCR experiences severe pollution from **vehicles, industries, fossil fuels, construction dust, waste burning, and stubble burning**.
- These conditions cause **respiratory and cardiovascular diseases** and reduce **life expectancy**.
- The persistence of such crises raises questions about the **State's responsibility** to protect environmental health.

Particulate Matter and Health Risks

- Particulate matter (PM)** is the most harmful pollutant.
- PM10** enters the respiratory system, while **PM2.5** penetrates deep into the lungs and bloodstream.
- Diesel particulates**, a type of PM2.5, are especially toxic for **children and vulnerable groups**.
- The **Commission for Air Quality Management (CAQM)** has strengthened the **Graded Response Action Plan (GRAP)**, mandating **school closures** and **staggered office timings** during severe pollution phases.



Constitutional Basis of Environmental Protection

- The Constitution did not originally guarantee environmental rights, but **judicial interpretation of Article 21 (Right to Life)** expanded it to include the **right to a clean environment**.
- Landmark cases like **Maneka Gandhi v. Union of India (1978)** broadened the meaning of “life.”
- Article 48A** directs the State to protect the environment, while **Article 51A(g)** makes it a **citizen's duty** to safeguard natural resources.

Judiciary and Public Interest Litigation (PILs)

- Since the 1980s, courts have intervened through **PILs under Articles 32 and 226** to address environmental harm.
- The judiciary has balanced **development needs with sustainability**, reinforcing that growth cannot come at the cost of ecology.
- The **Environment (Protection) Act, 1986** defines the environment as an interconnected system of **air, water, land, and living beings**.
- Courts have clarified that the **right to dignity includes pollution-free air and water**.

Environmental Principles in Indian Jurisprudence

- **Absolute liability:** Industries using hazardous substances must bear full responsibility for damage.
- **Precautionary principle:** Preventive action is required even without complete scientific certainty.
- **Polluter pays principle:** Polluters must bear the cost of environmental damage.
- These principles highlight **prevention, accountability, and sustainability**.

Public Trust Doctrine and State Responsibility

- Natural resources are held by the **State in trust for the people**.
- The State cannot exploit them for private gain at the cost of public interest.
- Recent judicial recognition of **climate change impacts** has expanded environmental rights under **Articles 21 and 14**.

Need for Explicit Constitutional Recognition

- Despite judicial progress, the absence of an **explicit fundamental right** to a healthy environment limits enforceability.
- Formal incorporation into **Part III of the Constitution** would strengthen **State accountability and citizen responsibility**.
- Such recognition is vital for **climate resilience and sustainable governance**.

Conclusion:

The right to a healthy environment in India has evolved through judicial interpretation but lacks explicit constitutional status. Recognising it formally as a fundamental right would strengthen accountability and ensure sustainable governance in the face of climate challenges.

III. Waste management

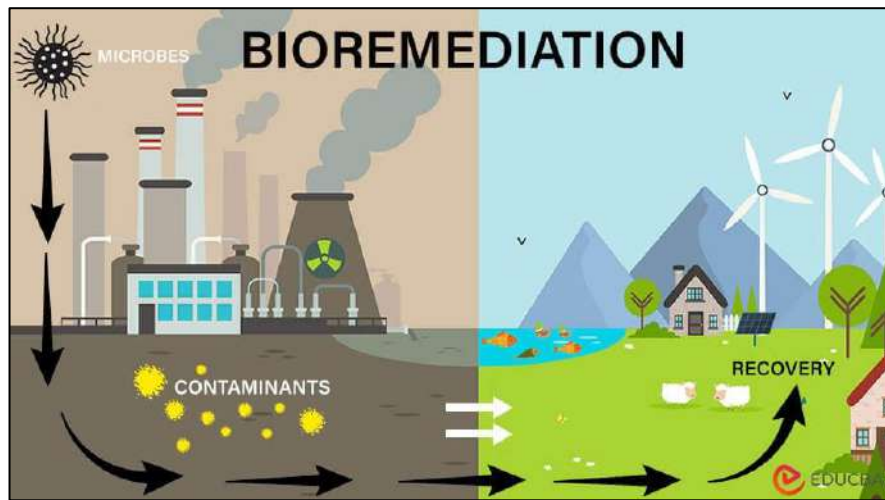
1. Why India Needs Bioremediation

Why in News?

- India is facing rising contamination of **rivers, soil, landfills, and industrial zones**, pushing policymakers and scientists to adopt **bioremediation as a low-cost and eco-friendly solution**.

What Is Bioremediation?

- Bioremediation uses **microorganisms and plants** to break down harmful pollutants.
- Pollutants such as **pesticides, oil, plastics, heavy metals, and industrial chemicals** are converted into non-toxic substances.
- It relies on **natural biological processes**, making it safer and more sustainable.



Why Is India Turning Towards Bioremediation?

- **Rapid industrial growth** has increased toxic waste in air, water, and land.
- **Polluted rivers and groundwater** threaten drinking water and agriculture.
- Traditional methods like incineration and chemical treatment are **costly and energy-intensive**.
- Native microbes are **well-adapted to Indian climate and soil**, improving success rates.
- Supports **green jobs** in biotechnology, waste management, and environmental services.

Types of Bioremediation Methods

- **In-situ Bioremediation:** Treatment occurs **at the polluted site**. Microbes or nutrients are added directly to soil or water.
- **Ex-situ Bioremediation:** Polluted material is **removed and treated** in controlled conditions. Uses bioreactors or composting systems.
- **Biotechnology-assisted Methods:** Use of **engineered or enhanced microbes** to break down complex pollutants. Helpful in dealing with plastics and persistent organic pollutants.

Current Use of Bioremediation in India

- Government research support through **Department of Biotechnology (DBT)** programmes.
- **CSIR-NEERI** develops microbial solutions for industrial and river pollution.
- **IITs** working on oil-spill clean-up microbes and soil restoration.
- Growth of **environmental biotech startups** offering microbial water and soil treatment.

Global Practices and Lessons

- **Japan** uses microbes and plants in waste and landfill management.
- **European Union** funds cross-border soil and mining site restoration projects.
- **China** integrates bioremediation in its national soil pollution control policies.

Challenges in Using Bioremediation

- **Risk of Ecological Imbalance:** If genetically **modified microbes** are **misused**, they could disrupt ecosystems and harm biodiversity.
- **Absence of Guidelines:** India currently **lacks national safety standards** or clear regulations for large-scale application of microbial technologies.
- **Shortage of Expertise:** There are too **few trained professionals** and testing facilities to ensure safe and effective use of these microbes.

- **Low Public Awareness:** Limited knowledge and **trust among people** make acceptance of microbial technologies a major challenge.

Way forward:

- **Frame National Protocols:** India should establish clear **national protocols and biosafety** regulations to ensure safe and effective use of bioremediation technologies.
- **Set Up Regional Centres:** Regional bioremediation centres must be created to connect universities, research institutions, and **industries for collaborative innovation** and application.
- **Integrate with National Missions:** Bioremediation should be incorporated into flagship programmes like *Namami Gange* and *Swachh Bharat*, as well as industrial compliance rules, to strengthen environmental management.
- **Promote Public Awareness:** Public education campaigns are needed to highlight the role of microbes as **protectors of the environment**, building trust and acceptance of microbial solutions.

Conclusion

Bioremediation offers India a **scientifically sound, affordable, and sustainable** way to tackle pollution. With proper regulation, research support, and integration into national missions, biological clean-up methods can shift India from damage control to ecosystem restoration.

IV. Global Warming and Climate Change

1. Climate Change and Deforestation Impact on Cyclones

Why in News?

- A recent study by the **World Weather Attribution (WWA)** group found that **climate change, deforestation, and rapid urbanisation** have significantly amplified the flood impacts of cyclones in Southeast Asia.

Background:

- Cyclones in Southeast Asia are no longer just **seasonal monsoon events**.
- **Cyclones Senyar (Indonesia & Malaysia)** and **Dithawru (Sri Lanka)** in **November 2025** caused severe destruction and over **1,600 deaths**, with rainfall far above historical norms.
- Rising **global temperatures, ecological degradation, and unplanned urban growth** have turned them into **compound climate disasters**, showing how human-induced changes worsen natural hazards.

Escalating Cyclone Rainfall in a Warming Climate

- **Global temperatures** have risen by **1.3°C since the mid-1800s**, increasing atmospheric moisture capacity.
- Each **1°C rise allows 7% more moisture**, leading to heavier rainfall.
- **Elevated sea surface temperatures** in the North Indian Ocean gave extra energy for cyclone formation.
- *Data:* In Sri Lanka, **five-day rainfall rose by 160%**, while Malaysia saw a **50% increase** compared to pre-industrial levels.

Sea Surface Temperature and Storm Intensification

- **Cyclone Senyar** occurred when sea surface temperatures were **0.2°C above the 1991 - 2020 average**.
- Warmer oceans increased **evaporation**, strengthening storms and prolonging rainfall.
- The study shows not only **intensity spikes** but also a rise in the **frequency of extreme rainfall events**.

Deforestation as a Flood Multiplier

- **Sri Lanka lost 90% of its forest cover (1900 - 2020)**, reducing natural flood buffers.
- Reduced infiltration and higher runoff triggered **landslides**, killing over **600 people**.
- In **Indonesia**, **25% of old-growth forests** were cleared for palm oil plantations, worsening flood risks.

Rapid Urbanisation and Exposure Expansion

- More people now live in **high-risk flood zones** in Sri Lanka and Indonesia.
- Expansion of **roads, railways, and croplands** increased surface sealing and runoff velocity.
- **Poor drainage** and altered land gradients intensified **urban flooding** during Cyclone Senyar.

Flood Impacts Beyond Rainfall

- **Economic losses** were estimated at **\$6 - 7 billion**, equal to **3 - 5% of GDP** in affected regions.
- Over **137,000 acres of farmland** were damaged.
- Floods triggered **dam breaches, canal destruction, and landslides**, worsening disaster severity.

Policy Significance

- **Attribution science** confirms climate change as a **decisive factor** in amplifying cyclone impacts.
- Floods are shifting from **monsoon-driven** to **short-duration extreme events**.
- Weak **land use planning** and poor **ecosystem protection** remain major policy gaps.

Conclusion

Cyclone disasters in Southeast Asia are now shaped by **climate warming, deforestation, and unplanned urbanisation**. Addressing future risks requires integrating **climate mitigation, forest conservation, and sustainable land-use planning** into disaster governance. Without these reforms, extreme floods will continue to erode resilience and livelihoods in the region.

V. Environmental impact assessment**1. Post-Facto Environmental Clearances****Why in News?**

- In a recent judgment, the Supreme Court allowed post-facto environmental clearances, recalling its earlier 2025 ruling that had banned them.

Background of the Issue

- **EIA as a preventive law:** Environmental Impact Assessment was designed to ensure projects get clearance **before** starting, to avoid environmental damage.
- **Rising violations:** Many industries began operations without approval, expecting later regularisation instead of strict action.
- **Policy relaxation over time:** Government notifications and draft rules gradually allowed post-facto approvals, weakening enforcement.
- **Judicial inconsistency:** Earlier Supreme Court rulings opposed retrospective clearances, but later decisions created uncertainty in environmental governance.

Divergent views

The Supreme Court's majority verdict and dissenting voice focus on different aspects of retrospective environmental clearances

CJI B.R. Gavai, Justice K. Vinod Chandran uphold review petitions:

Continuation of the May 16 verdict striking down *ex post facto* EC, will have a "devastating" impact on economy and development

Projects likely to be affected:

- 24 Central projects worth ₹8,293 crore
- 29 State-level projects worth ₹11,168 crore
- Loss to public exchequer to the tune of nearly ₹20,000 crore

Justice Ujjal Bhuyan finds no case for review:

Ex post facto EC is anathema to the environment.

Upholding the review would seem like the SC backtracking when a deadly smog is choking Delhi. A false narrative is being created, pitting the environment against development



What is Environmental Impact Assessment (EIA)

- Environmental Impact Assessment is a **preventive legal mechanism**.
- It requires **prior environmental clearance** before starting projects like mining, industries, dams, and infrastructure.
- The aim is to **anticipate environmental harm**, ensure public consultation, and impose safeguards before damage occurs.

Process of EIA for Housing Projects



What Is Post-Facto Environmental Clearances?

- **Post-facto clearance** means granting approval **after a project has already begun or is completed** without permission.
- It reverses the logic of environmental law by allowing projects to **"violate first, legalise later."**
- Initially meant only for rare procedural lapses, it gradually became a **tool to regularise illegal projects**.

What Has Changed in the Recent Judgment?

- The Supreme Court recalled the blanket ban on post-facto clearances.
- It argued that continuing the ban could harm **public investments and ongoing projects**.
- Industries may now **regularise violations by paying penalties**, instead of facing closure.
- This marks a shift from **strict prevention to post-violation correction**.

Importance of Environmental Impact Assessment (EIA)

- **Prevents environmental damage** by identifying risks to forests, water, air, and biodiversity before a project starts.
- **Protects public health** by assessing pollution impacts on local communities and vulnerable groups.
- **Ensures informed decision-making** by guiding governments to approve, modify, or reject harmful projects.
- **Strengthens democratic participation** through mandatory public hearings and transparency.

Impact on Environmental Safeguards

- **Weakening of preventive framework:** Environmental clearance loses its forward-looking nature.
- **Public hearings diluted:** Communities may lose their right to be consulted before projects start.
- **Reduced deterrence:** Monetary penalties may replace strict enforcement.
- **Higher ecological risk:** Forests, rivers, air quality, and coastal zones become more vulnerable.

Why This Is Concerning for India

- India has **severe air and water pollution**, especially in urban and industrial belts.
- Climate disasters like floods, cyclones, and heatwaves are increasing.
- Environmental damage directly affects **public health**, especially children and the poor.
- Weak compliance undermines India's **climate and biodiversity commitments**.

Conclusion

The Supreme Court's approval of post-facto environmental clearances represents a major shift in India's environmental governance. While intended to protect investments, it risks normalising violations, weakening public participation, and eroding long-standing environmental principles.

C. DISASTER MANAGEMENT**I. Disasters and their management****1. India's Disaster Response and Federalism****Why in news?**

- The 2024 Wayanad landslides exposed serious flaws in India's disaster-relief system over **centralised control, delayed funding, and erosion of fiscal federalism** in disaster management.

India's Disaster Management Financing Model

- Disaster response in India is governed by the **Disaster Management Act, 2005**.
- The Act envisages a **cooperative federal structure** for relief and recovery.
- **Financing operates through:**
 - **State Disaster Response Fund (SDRF)** - jointly funded by Centre and States.
 - **National Disaster Response Fund (NDRF)** - fully funded by the Centre for severe disasters.

- In practice, decision-making has become **approval-based rather than automatic**.

The Wayanad Landslides:

- Nearly **300 deaths** and large-scale destruction occurred in Wayanad, Kerala.
- State-assessed losses stood at **₹20,820 crore**, reflecting damage to homes, roads, and livelihoods. The Union government approved only **₹260 crore** as initial relief.
- The wide gap highlighted: Delayed recognition of disaster severity. Inadequate relief norms. Limited State autonomy in fund use.

Structural Weaknesses in Disaster Financing

- **Inadequate Relief Norms:** Compensation limits are disconnected from current economic realities. Focus remains on immediate relief, not long-term rehabilitation.
- **Excessive Central Discretion:** The Act does not clearly define what qualifies as a “severe disaster”. NDRF support depends on discretionary approval rather than objective thresholds.
- **Procedural Delays in Fund Release:** Multiple layers of verification and committees slow down assistance. Relief reaches victims after the critical response window has passed.
- **Rigid Use of SDRF Funds:** Unspent SDRF balances exist, but States cannot use them freely. Funds are restricted to notified items, excluding many real recovery needs.

Issues in Disaster Response and Centre - State Relations

- **Shift in Control:** Disaster management is moving away from shared responsibility towards greater centralised control.
- **Frontline Burden on States:** States remain the first responders during disasters but often lack adequate financial autonomy to act effectively.
- **Centre - State Trust Deficit:** Limited fiscal freedom and central dominance have widened the trust gap between the Union and State governments.

What Can India Learn from Global Models?

- **USA (FEMA):** Disaster declarations triggered by measurable damage indicators.
- **Mexico (FONDEN):** Automatic fund release after rainfall thresholds.
- **Philippines:** Quick-response funds tied to rainfall and casualty data.
- **Insurance pools:** Satellite-based triggers reduce political discretion.

Way Forward

- **Financial Reforms:** Update relief norms to reflect actual reconstruction costs. Introduce **rules-based, automatic fund release mechanisms**.
- **Federal Rebalancing:** Give States greater autonomy over SDRF usage. Reduce approval layers for NDRF access. Ensure equity-based allocation, not population-based averages.
- **Institutional Strengthening:** Sixteenth Finance Commission should overhaul disaster financing design. Establish a national disaster-risk authority for cross-State hazards.

Conclusion

India's disaster financing system is no longer aligned with climate realities or federal principles. The Wayanad landslides demonstrate that **centralised discretion and outdated norms weaken resilience**.

D. SCIENCE AND TECHNOLOGY

I. Developments and their Applications and Effects in Everyday Life.

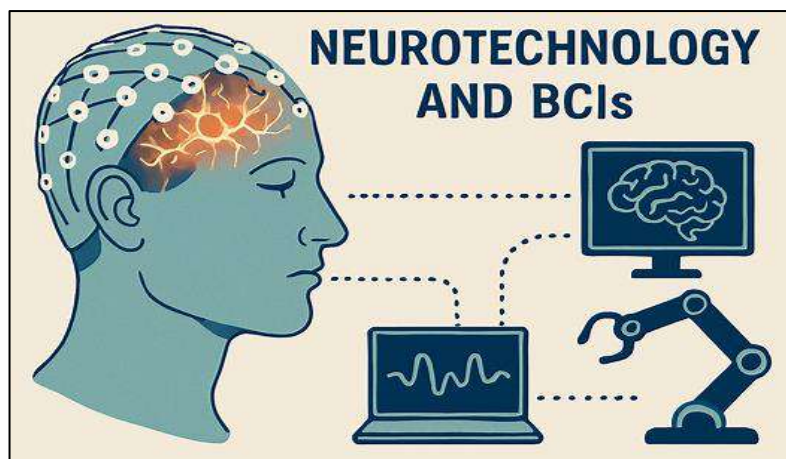
1. How Can India Benefit from Neurotechnology

Why in News?

- Neurotechnology is in focus after **Neuralink's human trials received approval in 2024**, and countries like the U.S., China, and Chile are making major investments, raising concerns about India's need to boost its own research, regulation, and innovation capacity.

Neurotechnology and BCIs

- Mechanical-Neural Integration:** Devices can monitor or influence brain activity, enabling control of prosthetics, wheelchairs, or robotic arms.
- Brain-Computer Interfaces (BCIs)** Neural signals are converted into digital commands via implanted electrodes or EEG headsets.
- Therapeutic Uses:** Helps diagnose neurological disorders, stimulate brain regions for depression or Parkinson's, and enable communication for paralysed patients.
- Human-Human Interfaces:** Experiments have shown simple brain-to-brain communication is possible.



Why India Needs Neurotechnology

- High Disease Burden:** Stroke, Parkinson's, spinal injuries, and depression are major challenges.
- Rise of NCDs:** Non-communicable neurological disorders have steadily increased between 1990 - 2019.
- Stroke Dominance:** Stroke is now the largest contributor to India's neurological disease load.
- Rehabilitation Potential:** BCIs can restore motor functions, aid communication, and reduce long-term drug dependence.
- Mental Health Benefits:** Neuromodulation and cognitive stimulation can support treatment of rising mental health issues.

India's Current Standing

- Academic Leadership:** IIT Delhi, IISc, and AIIMS are conducting advanced BCI research.
- Ethics & Neurorights:** IIT groups are exploring privacy and ethical concerns around neural data.
- Interdisciplinary Growth:** Neuroscience, AI, biomedical engineering, and biotech sectors are expanding, creating scope for innovation.

Global Progress - Lessons for India

- **U.S. BRAIN Initiative:** Large-scale collaboration to accelerate neurotechnology.
- **Neuralink Trials:** Demonstrated motor restoration in paralysed patients.
- **China Brain Project:** Focused on cognition, brain-inspired AI, and neurological disorders.
- **Chile & EU:** Leading in neuro-rights frameworks to protect mental privacy.
- **Applications:** Healthcare, gaming, rehabilitation, and security show wide economic potential.

Challenges for India

- **Regulatory Gaps:** No clear national guidelines for invasive vs non-invasive BCIs.
- **Ethical Concerns:** Neural data is highly sensitive, raising privacy risks.
- **Funding Shortage:** Limited industry incentives slow adoption.
- **Need for National Mission:** Coordinated strategy required to harness biotech and AI capacity.

Conclusion

Neurotechnology is a **strategic frontier** for India, offering medical, technological, and economic benefits. To fully realise its potential, India must build a **robust regulatory framework, ethical safeguards, and a national mission** that aligns innovation with patient safety and cognitive rights.

2. DPIIT Working Paper on Copyright and Artificial Intelligence

Why in News?

- India's **Department for Promotion of Industry and Internal Trade (DPIIT)** has released a working paper on **AI and copyright issues**, proposing a licensing framework to ensure fair payment to content creators.

India's Stand on AI and Content Rights

- Large Language Models (LLMs) depend on huge volumes of text, images, and multimedia scraped from the Internet.
- This has created tension between **AI developers**, who seek free access, and **publishers/content creators**, who demand licensing and compensation.
- India's proposal aims to balance innovation with creators' rights, avoiding prolonged litigation and unchecked exploitation.

Why the Issue is Important

- **Global lawsuits rising:** Media houses worldwide are suing AI firms for unauthorized use of content.
- **India's vulnerability:** Without regulation, small publishers and creators risk losing fair compensation.
- **Policy shift:** Moves India from unregulated scraping toward a structured revenue-sharing model.

Drivers of LLM Growth

- **Advances in machine learning:** Continuous improvements enhance reasoning and performance.
- **Access to massive datasets:** Publicly available content fuels training depth.
- **Dependence on Internet content:** AI firms rely heavily on material created by publishers and individuals.

Core Conflict

- **AI firms' stance:** Public content should be freely usable for training, even if monetized.
- **Creators' demand:** Use of their intellectual property must require consent and licence fees.
- **Industry fear:** News, entertainment, and publishing sectors worry about uncompensated use.

India's Proposal

- **Mandatory licensing:** Unlimited scraping allowed, but structured payments required.
- **Copyright society:** A non-profit body to collect royalties from AI developers.
- **Revenue sharing:** Ensures creators benefit from AI outputs based on their work.

Why the Model is Practical

- **Avoids opt-out burden:** Individual creators cannot prevent scraping alone.
- **Acknowledges AI reality:** Models generate new outputs, not exact copies.
- **Better than no system:** Even if imperfect, it provides some compensation.

Challenges Ahead

- **Royalty calculation:** Difficult to balance payments between large and small publishers.
- **Global litigation:** No uniform judicial clarity yet.
- **Industry resistance:** Tech firms oppose added regulation.
- **Risk of delay:** Waiting for courts benefits AI companies, not creators.

Conclusion

India's AI-copyright ecosystem ensures that **AI innovation and content creators coexist fairly**. With government support and stakeholder dialogue, India can build a sustainable framework that protects rights while fostering technological growth.

3. Suncatcher And Ai Data Centres in Space**Why in News?**

- Google has announced **Project Suncatcher**, a research programme to build **solar-powered data centres in space** starting in 2027.

About Project Suncatcher

- Google plans to deploy **satellite constellations equipped with Tensor Processing Units (TPUs)** to perform large-scale machine learning tasks.
- These satellites will be connected through **laser-based optical links** to mimic Earth-based data centre coordination.
- Chips have been tested for **radiation tolerance** to survive space conditions.
- Two prototype satellites will be launched in partnership with **Planet Labs by 2027** to test the technology.

Need for Space-Based Data Centres

- AI boom has caused rapid expansion of terrestrial data centres, leading to **high water use and fossil-fuel dependence**.
- Power demand from data centres is projected to grow by **165% by 2030** (Goldman Sachs).
- Environmental costs and grid instability make alternative solutions necessary.

Advantages of Space Deployment

- Space offers **continuous solar radiation**, ensuring reliable energy supply.
- Systems are insulated from **natural disasters and undersea cable disruptions**.
- Lunar or orbital facilities provide **stable conditions** for uninterrupted operations.



Data Sovereignty and Legal Aspects

- Data localisation laws restrict where companies can store and process data.
- The **1967 Outer Space Treaty** prohibits national sovereignty claims, potentially allowing **multi-country hosting** from a single space facility.
- Advances in rocket technology have reduced launch costs, making such experiments more feasible.

Challenges and Limitations

- **High construction and maintenance costs** remain a major barrier.
- Repairs in space are difficult and may require on-site specialists.
- **Latency in data transmission** could affect real-time applications.
- **Cybersecurity risks** in extraterrestrial systems remain unresolved.

Other Tech Giants Exploring Space Data Centres

- **OpenAI's Stargate project** envisions Dyson sphere-like AI centres powered by solar energy.
- **Star cloud satellite** with Nvidia H100 GPU has already tested AI computation in orbit.
- **Lonestar Data Holdings** deployed a mini data centre on the Moon.
- **Jeff Bezos (Blue Origin)** and **Eric Schmidt (ex-Google)** have also proposed orbital data centres.

Conclusion

Project Suncatcher signals a **radical shift in digital infrastructure**, moving computation beyond Earth to address sustainability, energy, and sovereignty challenges. While hurdles remain, the growing interest among global tech leaders suggests that **space-based data centres could become a reality within the next decade**.

4. How data is reshaping crime detection

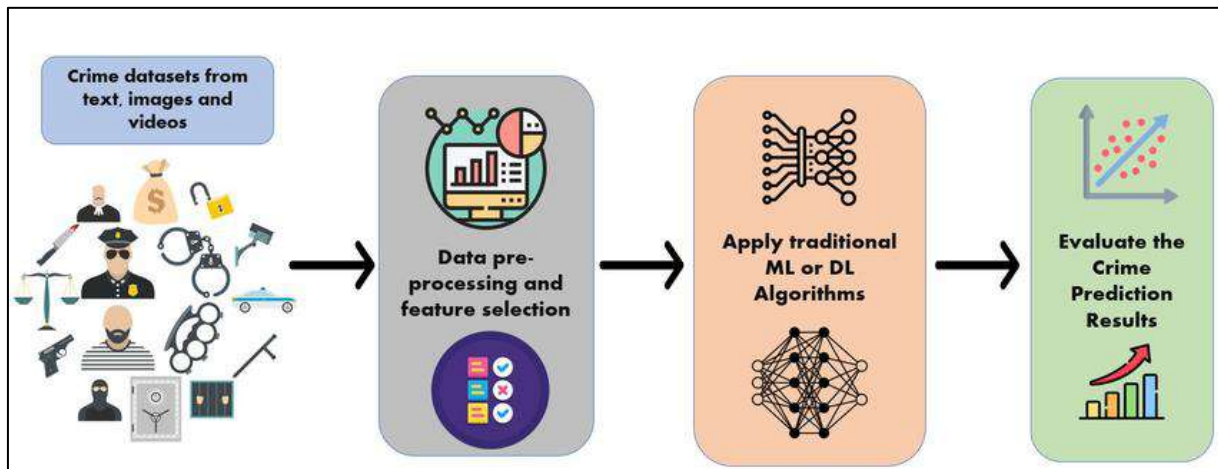
Why in News?

- A recent case demonstrated how **digital footprints** such as app usage and online transactions can be crucial in tracing suspects.

The BlueChip Scam

- In **2021**, Ravindra Soni launched the **BlueChip Group**, claiming to trade in forex and commodities like gold and oil.
- The company attracted investors from **India, UAE, Malaysia, Canada, and Japan**.

- By **2024**, it was exposed as a **fraudulent scheme**, with investors losing nearly **₹1,000 crore**.
- After a year on the run, Soni was arrested in **November 2025**, traced through a **food delivery app order**.



Digital Residue as Evidence

- Investigators now rely on **digital residue** - data from apps and services - as crucial evidence.
- In a **₹5,300-crore GST fraud (May 2024)**, OTPs from food apps and **FASTag toll alerts** helped map suspect movements and uncover fake firms.
- Such small data points are proving vital in exposing **large criminal networks**.

Evasion Tactics and Tracking

- Criminals attempt to evade detection by **changing SIM cards, phones, and hotel identities**, keeping devices off except for OTPs.
- This very pattern of behaviour becomes a **clue for investigators**.
- **FASTag toll data** has been used to track luxury vehicles across highways, narrowing down suspect locations.

Multi-App Linkages

- In **October 2025**, Delhi Police dismantled a **₹22 lakh cyber-fraud ring** after a 1,800-km chase across four states.
- **WhatsApp data** revealed overseas links to Malaysia.
- Footprints from **Flipkart, Swiggy, and Zomato** helped identify suspects despite frequent location changes.

Legal Pathways for Data Sharing

- Most apps' **privacy policies** allow data sharing with law enforcement when required by law.
- This makes **digital traces admissible and actionable** in investigations.

Global Parallels

- In the **US Palisades Fire (2025)**, prosecutors used **digital evidence** such as ChatGPT queries and AI-generated images to link the suspect to the blaze that destroyed **23,000 acres**.
- This shows a **global shift towards digital evidence** in crime detection.

Regulatory Changes in India

- **Cybersecurity incidents** rose from **10.29 lakh (2022)** to **22.68 lakh (2024)**, showing the scale of digital crime.
- Losses reported on the **National Cyber Crime Portal** reached **₹36.45 lakh by Feb 2025**.
- The **DoT** has directed messaging apps like WhatsApp and Telegram to enforce **SIM-to-device binding**, preventing misuse.

- Under the **Telecommunication Cybersecurity Amendment Rules, 2025**, the concept of **Telecommunication Identifier User Entity (TIUE)** was introduced, covering all apps using phone numbers for registration.
- Experts warn this could extend regulation to **food delivery apps** and other services.

Conclusion

Digital trails are becoming **central to policing in India**, while they improve **accountability and efficiency**, challenges remain in **privacy, data protection, and regulation**. A balance between **law enforcement needs and citizen rights** will be crucial for future governance.

II. Achievements of Indians in Science & Technology

1. India Needs Strong Research Pipelines in Innovation

Why in News?

- India's Gross Expenditure on R&D (GERD) remains stagnant, which raises concerns about India's inability to convert research into commercial technologies and global innovation leadership.

India's Innovation Paradox

- India ranks **second globally in patent filings**, but only a small fraction are commercialised.
- Universities, public labs, and corporates largely function in **silos**, limiting knowledge transfer.
- R&D funding is often **short-term and unpredictable**, disrupting long research cycles.
- Innovation leaders abroad built **stable pipelines** linking universities, industry, and government.

What Global Innovation Leaders Do Differently

- **Stable Research Funding:** Countries like the US, China, Germany, and South Korea maintain **consistent multi-year R&D investments**. Long-term grants help labs plan infrastructure, talent, and goals.
- **University - Industry Collaboration:** Platforms such as **Industry - University Research Centres (US)** connect firms with academic teams. Outcomes are aligned with **market needs**.
- **Commercial Focus:** Success measured by patents converted into products, start-ups spun out of campuses, and technology licensing.

India's Current R&D Landscape

- **Corporate R&D strength:** Pharma, automobiles, defence electronics, and energy firms invest heavily.
- **Weak linkages:** Investments remain firm-specific, not connected to universities.
- **Public labs/universities lack:** Shared infrastructure, industry exposure, and outcome-linked incentives.

Structural Gaps Weakening India's Pipeline

- **Low GERD:** At **0.65% of GDP**, far below global leaders.
- **Fragmented System:** Universities act as isolated units; duplication and underuse of equipment common.
- **Weak Translation:** Limited support for technology transfer offices, patent licensing, and industry-sponsored doctoral research.

Policy Measures Needed

- **Funding & Governance:** Move from ad-hoc grants to **multi-year mission-based funding**; link to measurable outcomes.

- **Industry - Academia Integration:** Promote co-funded research platforms; incentivise firms to hire PhDs and co-supervise research.
- **University Research Culture:** Encourage applied research alongside basic research; align doctoral training with industry exposure.
- **Transparency & Accountability:** Mandatory reporting of R&D intensity and collaboration outcomes; reward successful commercialisation.

Royalty Framework

- **Rate-Setting Committee:** Includes government officials, legal experts, economists, AI specialists, and CRCAT representatives.
- **Pricing Model:** Initially flat rate; later percentage of global revenue earned by AI systems.
- **Review Cycle:** Rates revised every three years; subject to judicial review.
- **Retroactive Application:** AI firms already using copyrighted content must pay past dues.

Transparency & Burden of Proof

- **Data Disclosure:** AI firms must submit detailed summaries of datasets used (text, image, music, audiovisual).
- **Royalty Distribution:** Proceeds shared proportionally; heavily used categories like news and music get larger shares.
- **Legal Presumption:** In disputes, content owners' claims are presumed valid; AI firms must prove otherwise.

Indian Initiatives:

- **Atal Innovation Mission (AIM):** Promotes start-ups, incubation centres, and Atal Tinkering Labs in schools to build innovation culture.
- **National Research Foundation (NRF):** Planned as a central body to fund and coordinate research across universities, labs, and industries with long-term grants.
- **Digital India & National Supercomputing Mission:** Expands digital infrastructure, high-performance computing, and connectivity to support advanced research and data-driven innovation.
- **Science & Technology Parks / Centres of Excellence:** Establishes research hubs like IISc, IITs, and biotech parks to link academia, industry, and government for applied research and technology transfer.

Conclusion

India has the talent, markets, and scientific base to become a global innovation hub. Yet without predictable funding, strong university - industry linkages, and outcome-driven pipelines, patents will remain underutilised. Building structured research pipelines is essential to transform India's innovation potential into **economic growth, technological leadership, and global competitiveness**.

III. Medical science/vaccines/diseases

1. Strengthening India's Fight Against Antimicrobial Resistance (AMR)

Why in News?

- India has rolled out the **National Action Plan on Antimicrobial Resistance (NAP-AMR 2.0)** for 2025 - 29 to tackle rising drug resistance across human health, livestock, agriculture, and the environment.

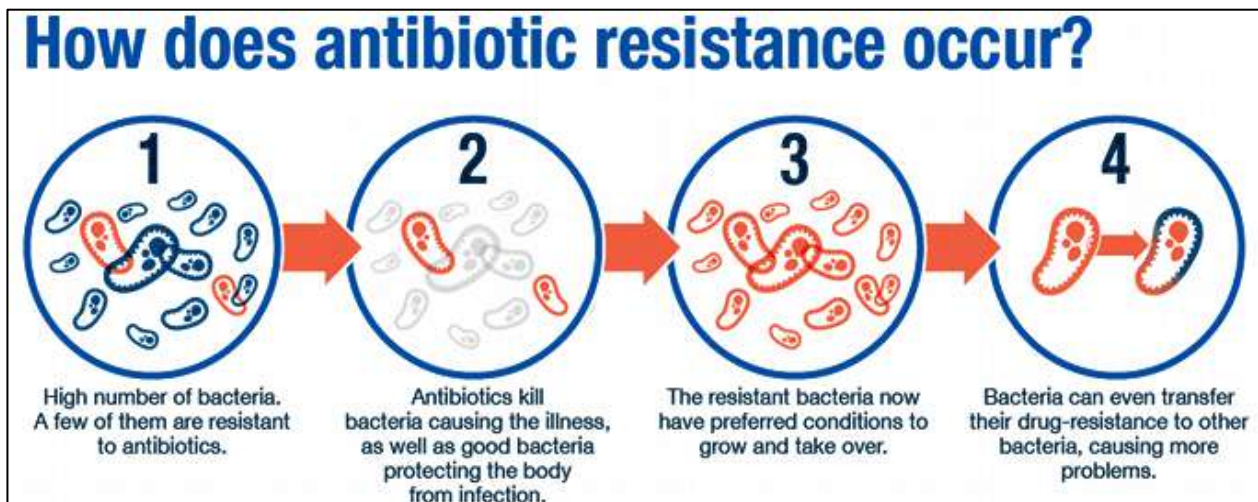
Why AMR Matters

- AMR occurs when microbes stop responding to medicines, making infections harder and costlier to treat.

- **India's Challenge:** Overuse and easy availability of antibiotics without prescription have accelerated resistance.
- **Multi-sector Impact:** AMR now affects humans, animals, crops, soil, and water.
- **Past Efforts:** India's first NAP-AMR (2017) raised awareness but suffered weak implementation at the State level.

National Action Plan on AMR (2017)

- **Achievements (2017):** AMR made a public health priority; labs strengthened; One Health approach adopted.
- **NAP AMR 2.0:** Clearer responsibilities; private sector included; focus on diagnostics, innovation, and alternatives.
- **Governance:** National coordination; State AMR cells; standard reporting; stronger lab surveillance.



Key Challenges

- Inadequate funding and lack of compulsory financial support for States.
- No incentive or penalty system for State performance.
- Fragmented responsibilities across health, agriculture, environment, and pharmaceuticals.
- Absence of real-time monitoring and statutory reporting obligations.

Antimicrobial Resistance (AMR)

AMR occurs when microorganisms develop the ability to resist antimicrobial medicines.

- It makes **common infections difficult or impossible to treat.**
- **Overuse and misuse of antibiotics** in humans, animals, and agriculture are the **main causes.**
- **Poor infection control, unsafe sanitation, and self-medication** accelerate resistance.
- AMR leads to **longer hospital stays, higher healthcare costs, and increased mortality.**
- It **threatens routine medical procedures** such as **surgery, chemotherapy, and organ transplants.**
- **Drug-resistant infections can spread globally, making AMR a major public health challenge.**
- Combating AMR requires **rational drug use, surveillance, hygiene, vaccination, and new drug development.**

Reforms Needed

- Link AMR funding to mandatory grants under the **National Health Mission.** Establish a permanent **national AMR control centre.**
- Enforce prescription-only antibiotic sales. Expand surveillance to wastewater, livestock, and food supply chains.
- Reward States that show measurable reduction in antibiotic misuse.

Conclusion

NAP-AMR 2.0 is a science-driven response to India's AMR crisis. Yet without strong funding, State accountability, and integrated governance, it risks repeating past shortcomings. A centralised cooperative approach is vital to safeguard India's health systems, food security, and future medical effectiveness.

2. Data Exclusivity and India's Generic Drug Industry

Why in News?

- The government is considering the idea of **data exclusivity in pharmaceuticals**, which could affect India's generics-driven drug model.

What is Data Exclusivity

- When a new drug is developed, companies submit **clinical trial data** to prove safety and effectiveness.
- Normally, after **patent expiry**, generic firms can enter the market using **bioequivalence studies** for approval.
- Data exclusivity** changes this by giving the innovator company **exclusive rights over trial data for a fixed period**.
- During this period, regulators cannot rely on the data to approve generics, even if the **patent has expired**.
- Generics must either wait or conduct **costly independent trials**, raising barriers to entry.
- Unlike patents (which protect the invention), **data exclusivity protects the underlying test data**.

India's Pharmaceutical Model and Generics

- India is known globally as the "**pharmacy of the Global South**", with nearly **90% of firms focusing on generics**.
- This model ensures **affordable medicines domestically** and a strong **export presence in developing countries**.
- Current Indian drug laws **do not provide data exclusivity**, allowing generics to launch immediately after patent expiry.

Government's Current Approach

- Inter-ministerial consultations have been held involving **Commerce Ministry, DPIIT, Pharma Department, and Health Ministry**.
- The move is linked to **trade talks with EFTA** and expectations of attracting **foreign investment**.
- However, the **Health Ministry has clarified** that it has no proposal to introduce data exclusivity, showing **policy divergence**.

Impact on Affordable Medicines

- Could **delay entry of generics** even after patents expire.
- Likely to cause **higher drug prices** and reduced access for **low-income populations**.
- May extend **monopolies beyond the 20-year patent term**, even without new innovation.

Implications for India's Generic Industry

- Would weaken India's **generics-led growth model**.
- Forcing firms to conduct full trials would **raise costs and reduce competitiveness**.
- Could undermine **patent challenges and compulsory licensing**, tools India uses to protect public health.
- Past cases of court-approved generics for rare diseases may become harder if **regulatory approval is blocked**.

Role of the Drug Regulator

- The **CDSCO** has suggested current rules create an **uneven field** between innovators and generics.

- Critics say this indirectly supports **data exclusivity**.
- Public health groups warn of risks like **evergreening of patents, unnecessary trials, delays in cheaper drugs, and expanded monopolies**.

Way Forward

- India has **no global obligation** to adopt data exclusivity.
- Any move must balance **innovation incentives, trade goals, and public health priorities**.
- Policy must align with **constitutional commitments to affordable healthcare** while safeguarding India's role as a **global supplier of generics**.

Conclusion:

Data exclusivity could reshape India's pharmaceutical landscape by delaying generics and raising treatment costs. Safeguarding affordable healthcare while balancing innovation and trade interests must remain the core policy priority.

IV. Awareness in the fields of IT, Space,

1. The Sanchar Saathi App

Why in News?

- The Department of Telecommunications asked smartphone makers to pre-install the **Sanchar Saathi app** on all new devices.

What is Sanchar Saathi?

- A government digital platform created by the Department of Telecommunications.
- Designed to tackle mobile fraud, illegal SIM usage, and theft of devices.
- Integrated with national telecom databases and law-enforcement systems to track, block, and regulate mobile devices and SIM connections.



Key Functions of the App

- **IMEI-based tracking:** Helps users block or trace stolen phones, preventing reuse of lost devices.
- **SIM verification:** Detects fake or illegally issued SIM cards to reduce telecom crimes.
- **Fraud reporting:** Allows citizens to report spam calls, cyber scams, and fraudulent messages.
- **Law enforcement support:** Assists agencies in identifying illegal telecom networks.

Why Has It Raised Concerns?

- **Consent Ambiguity:** Pre-installation by default weakens informed consent; users may not know if they can uninstall it.
- **State Presence on Devices:** First instance of a government app mandated at the manufacturing stage, raising fears of normalising compulsory digital tools.
- **Privacy Risks:** Broad data access (IMEI, communication permissions, media access) increases chances of misuse, breaches, or surveillance.
- **Vague Policy Language:** Data sharing “when required by law” is open to wide interpretation, reducing accountability.

Nature of Data Collected

- Unique device identifiers like IMEI numbers.
- Mobile registration details linked to SIM ownership.
- Limited access to communication or camera functions when reporting fraud.
- While each function has a stated purpose, the overall scope of access raises proportionality concerns.

Constitutional and Legal Dimensions

- The **Puttaswamy judgment (2017)** recognised privacy as a fundamental right under Article 21.
- Experts argue mandatory pre-installation may fail the three-fold test of **legality, necessity, and proportionality**.
- No explicit statutory backing exists for compulsory installation, and the level of data access may exceed the stated objectives.

Way Forward

- **Policy Clarity:** The government should clearly state whether the app is voluntary or mandatory.
- **Minimal Permissions:** Data access must be restricted only to functions that are essential.
- **User Control:** People should always have the option to uninstall or disable the app.
- **Strong Oversight:** Independent monitoring, regular privacy audits, and transparent data practices must be ensured.

Conclusion

Sanchar Saathi addresses real concerns of mobile fraud and security. Yet, its current implementation raises serious constitutional and governance issues. A balanced approach is needed - digital tools must protect citizens without undermining privacy, autonomy, or democratic accountability.

2. Digital Personal Data Protection (DPDP) Rules 2025

Why in News?

- The Government of India has notified the **DPDP Rules 2025**, completing the operationalisation of the DPDP Act 2023.

Background

- India’s digital ecosystem has expanded rapidly, but privacy safeguards remained weak.
- The DPDP Act 2023 laid the foundation for a modern data protection regime.
- The 2025 Rules provide detailed compliance mechanisms, enforcement powers, and timelines for implementation.

Features of the DPDP Act and Rules

WHAT IT MEANS FOR CONSUMERS			KEY PROVISIONS Indian Digital Personal Data Protection Act 2023
● DATA can be processed or shared by any entity only after consent.	● SAFEGUARDS, including penalties, introduced to prevent misuse of personal data.	● ALL data to be categorized under three heads—general, sensitive and critical.	
THE GOVERNMENT & REGULATORY ROLE			
● GOVT will have the power to obtain any user's non-personal data from companies.	● THE bill mandates that all financial and critical data has to be stored in India.	● SENSITIVE data has to be stored in India but can be processed outside with consent.	
WHAT COMPANIES HAVE TO DO			
● SOCIAL media firms to formulate a voluntary verification process for users.	● SHARING data without consent will entail a fine of ₹15 crore or 4% of global turnover.	● DATA breach or inaction will entail a fine of ₹5 crore or 2% of global turnover.	

Source: Mint research

Citizen-Centric Design

- **SARAL framework:** Simple, Accessible, Rational, and Actionable language for easy compliance.
- **Rights of Data Principals (citizens):** Consent, correction, erasure, grievance redressal.
- **Duties of Data Fiduciaries (entities):** Lawful processing, security safeguards, breach reporting.

Implementation Timeline

- **Immediate:** Data Protection Board of India (DPBI) set up with four members in New Delhi; RTI Act amended to restrict disclosure of personal information.
- **12 - 18 months:** Consent requirements, purpose limitation, breach notifications, appointment of Data Protection Officers (DPOs), and launch of Consent Manager Framework (Nov 2026).
- **Full compliance:** Large tech firms expected to comply by May 2027.

Significant Data Fiduciaries (SDFs)

- **Classification based on data volume**, sensitivity, and impact on sovereignty or public order.
- **Global tech firms** like Meta, Google, Apple, Microsoft, and Amazon likely to be designated as SDFs.
- **Obligations include** impact assessments, stricter compliance, and parental consent verification.

Data Localisation & Transfers

- **Conditional localisation:** Certain categories of personal and traffic data cannot leave India.
- **Industry pushback expected:** Nasscom and DSCI advocate interoperable cross-border frameworks.
- **Children's Data:** Mandatory parental consent verification. Behavioural tracking and targeted ads for children restricted.
- **Breach Notification & Penalties:** Users must be informed "without delay" about breaches. Penalties up to **₹250 crore** for failure to prevent breaches.

Challenges:

- **RTI dilution:** Restricts disclosure of officials' personal information, reducing transparency.
- **Government exemptions:** Broad powers for state agencies may weaken privacy protections.
- **Delayed protections:** Consent and erasure rights postponed by 12 - 18 months.
- **Capacity issues:** Only four DPBI members may be inadequate for India's scale.
- **Compliance burden:** Startups may struggle with high costs and complex requirements.

Way Forward

- **Institutional Strengthening:** Empower the Data Protection Board of India (DPBI) with autonomy, adequate staffing, and resources, while ensuring clear localisation rules through consultation with industry and global partners.
- **Balanced Governance:** Revisit RTI amendments to strike a balance between privacy and transparency, and provide transitional support with standard compliance templates for firms.
- **Citizen & Cybersecurity Focus:** Promote digital literacy campaigns to build public awareness, and enforce minimum cybersecurity standards backed by regular audits.

Conclusion

The DPDP Act 2023 and Rules 2025 mark a historic step in India's privacy journey. They aim to balance **individual rights, national security, and innovation**. Effective implementation, strong oversight, and stakeholder engagement will be crucial to ensure that India's digital future is both secure and citizen-centric.

E. SECURITY**I. Linkages between development and spread of extremism****1. The Future of Governance in Post-Maoist India****Why in News?**

- Maoist violence has declined in many Fifth Schedule but weak governance, poor service delivery, and alienation of tribal communities continue to challenge durable peace and democratic legitimacy.

Evolution of Maoism as Governance

- **Administrative neglect:** Weak delivery of health, education, policing, and justice allowed Maoists to fill the vacuum.
- **Parallel authority:** Maoists offered dispute resolution, food rations, and swift justice through informal courts.
- **Political mobilisation:** Insurgency became a tool for tribal assertion against extractive state institutions.

Constitutional Vision of Fifth Schedule

- Designed to protect tribal communities through **Tribal Advisory Councils** and Governor's special powers.
- Restrictions on land alienation aimed to safeguard livelihoods and culture.
- Emphasised autonomy and governance aligned with tribal customs.

Structural Failures in Governance

- **Under-representation:** Adivasis excluded from bureaucracy, policing, and revenue administration.
- **Administrative alienation:** Officials lacked cultural sensitivity and local knowledge.
- **Weak institutions:** Fifth Schedule provisions remained procedural, not transformative.



Land, Forests, and Resource Governance

- **Land alienation:** Millions displaced despite constitutional safeguards.
- **Revenue abuse:** Land acquisition and forest laws often violated.
- **Extractive model:** Mineral-rich regions saw development without benefit-sharing for locals.

Failure of Decentralised Self-Governance

- **PESA dilution:** Panchayat Extension to Scheduled Areas Act poorly implemented.
- **Gram Sabha marginalisation:** Consent ignored in mining and land acquisition.
- **State resistance:** Amendments weakened self-rule provisions.

Contradictions in Rights-Based Laws

- **Forest Rights Act (FRA):** Faced bureaucratic hurdles and weak enforcement.
- **Compensatory Afforestation Act (2016):** Prioritised afforestation over tribal livelihood rights.
- **Legal dilution:** Judicial and executive actions weakened protective intent.

Governance Gains and Limits

- Better access to roads, telecom, welfare schemes, and digital transfers.
- Yet, education, policing, health, and judiciary remain inadequate.
- Panchayats in Fifth Schedule areas underperform compared to Sixth Schedule councils.

Way Forward

- **Reorient Fifth Schedule:** Strengthen Tribal Advisory Councils and Governor's role.
- **PESA-based decentralisation:** Empower Gram Sabhas in land, mining, and forest decisions.
- **Rights-based governance:** Enforce FRA and integrate livelihood with conservation.
- **Administrative inclusion:** Recruit and train tribal personnel in governance institutions.
- **Development-security convergence:** Align civil administration with security operations.

Conclusion

The decline of Maoist violence is a major security success, but without genuine tribal representation, effective implementation of constitutional safeguards, and inclusive resource governance, the risk of re-radicalisation remains. Durable peace requires **strong institutions, decentralised self-rule, and rights-based development** in Fifth Schedule areas.

GENERAL STUDIES – 4

ETHICS, INTEGRITY AND APTITUDE

I. Ethics and Human Interface

1. Ethics In the Age of AI

Rapid advances in **artificial intelligence and automation** are challenging traditional ideas of thought, consciousness, and human uniqueness. This has revived debates on the **role of philosophy in guiding ethics and meaning** in a technology-driven age.

What It Means

- The phrase *Beyond Algorithms* reflects how **technology and philosophy together shape human values, ethics, and identity**.
- While technology expands human capability, **philosophy asks deeper questions** about purpose, responsibility, and limits.

Thought as the Basis of Existence

- **Cartesian Rationalism:** Descartes' "cogito" highlights rational thought as the foundation of existence.
- **Intentionality:** Human thought has direction and purpose, unlike AI's computational outputs, making it central to **moral responsibility**.
- **Self-awareness:** Humans can reflect on their own beliefs and actions, a quality absent in algorithms.
- **Normative vs Instrumental Reasoning:** Humans ask "what ought to be," while AI only optimises "how to do."
- **Personhood:** Ethical traditions emphasise autonomy and dignity, distinguishing humans from machines.

Decline of Philosophy in Public Life

- **Loss of practical wisdom:** Technical expertise is valued more than ethical judgment.
- **Market-driven education:** Focus on utility sidelines philosophy as "non-productive."
- **Fragmented moral discourse:** Lack of shared frameworks leads to relativism and polarisation.
- **Technocratic bias:** Policy decisions often ignore ethical dimensions of justice and rights.
- **Rise of ideology:** Dogma replaces critical inquiry, reducing nuanced debate.

Misconceptions Behind Philosophy's Decline

- **Scientific reductionism:** Science explains "how," but not "why" or "what ought to be."
- **Ideology posing as philosophy:** Closed answers replace philosophy's openness and skepticism.
- **Hyper-specialisation:** Fast economies undervalue slow reflection and synthesis.
- **Materialist bias:** Non-quantifiable outcomes like moral clarity are ignored in productivity metrics.

Why Philosophy Remains Essential

- Provides **ethical guidance under uncertainty** when data is inconclusive.
- Builds **resilience against misinformation and manipulation**.
- Forms the **basis of justice, rights, and dignity** in institutions.
- Addresses **existential questions of meaning and flourishing** beyond efficiency.

Technology as Philosophy's Return

- **AI and moral agency:** Raises questions of responsibility and accountability.
- **Algorithmic bias:** Demands scrutiny of fairness, consent, and justice.
- **Language and truth:** Digital distortion revives concerns about meaning and communication.
- **Human dignity:** Philosophy reasserts creativity and moral uniqueness as irreplaceable values.

Conclusion

As technology advances, **philosophy is becoming more vital, not less**. It ensures progress remains **human-centred, ethical, and meaningful**, reminding us that to think and to choose defines what it means to be human.

II. Attitude

1. Attitude Beats Aptitude in The Modern Workplace

A recent discussion highlights how **attitude is becoming more important than aptitude** in shaping career success. In AI-driven workplaces, qualities like **adaptability, accountability, and coachability** matter as much as technical skills.

What It Means

- The idea of *attitude beating aptitude* reflects the growing reality that **mindsets and behaviours** - such as openness to learning, resilience, and collaboration - often determine professional growth more than raw technical ability.
- This is especially true in the **early years of a career**, where adaptability and interpersonal maturity help employees stand out.

Importance of Attitude in the Workplace

- **Learnability over static knowledge:** In fast-changing roles, openness to learning and experimenting keeps employees relevant, while fixed skills become outdated.
- **Ownership and accountability:** Taking responsibility for outcomes builds trust and shows reliability beyond task completion.
- **Handling ambiguity:** Calmness and adaptability in uncertain situations improve problem-solving and performance.
- **Collaboration and maturity:** Positive attitude supports teamwork, respectful communication, and conflict resolution in interdependent workplaces.
- **Coachability and growth mindset:** Willingness to accept feedback and improve continuously signals leadership potential.

Importance of Aptitude in the Workplace

- **Foundation of competence:** Technical aptitude ensures minimum standards of quality and safety.
- **Efficiency and problem-solving:** Strong aptitude allows faster understanding of tasks and logical solutions.
- **Credibility in specialised roles:** Aptitude builds confidence in technical or regulated domains.
- **Innovation and depth:** High aptitude supports structured thinking and scalable solutions.
- **Reduced training dependency:** Skilled employees require less supervision, saving organisational resources.

Challenges in Developing the Right Attitude

- **Fear of mistakes:** Over-focus on perfection discourages experimentation.
- **Rigid hierarchies:** Power distance prevents young professionals from expressing ideas openly.

- **Digital disengagement:** Remote work reduces informal learning and team bonding.
- **Credential entitlement:** Excessive focus on degrees weakens humility and openness.
- **Low feedback literacy:** Difficulty in handling feedback leads to defensiveness.

Methods to Build Attitude and Aptitude

- **Continuous learning culture:** Blend behavioural and technical learning for adaptability.
- **Structured feedback:** Regular feedback builds accountability and reflection.
- **Experiential learning:** Real tasks strengthen competence and confidence.
- **Ethics-based training:** Integrity and fairness shape sustainable workplace behaviour.
- **Mentorship and role models:** Observing seniors shows how skills and attitude work together.

Conclusion

Aptitude opens the door to employment, but attitude drives growth, trust, and leadership. Ethical behaviour, accountability, and openness to learning transform skills into long-term excellence, making **character the true multiplier of competence.**

III. Emotional Intelligence

1. Educational Excellence Without Ethics

Recent incidents of **caste humiliation, unethical behaviour by professionals, and institutional misconduct** have highlighted the urgent need for **ethical education alongside academic achievement** in India.

Why Education Cannot Be Ethically Neutral

- **Education shapes power, not just skill:** Professionals hold authority, and without ethics, their decisions can worsen injustice.
- **Knowledge without conscience is risky:** Intellectual ability without moral grounding often justifies corruption or cruelty.
- **Values guide decisions under stress:** Internal ethics ensure integrity in ambiguous situations where rules may not suffice.

Symptoms of Excellence Without Ethics in India

- **Toxic conduct:** Educated individuals engage in caste harassment, bullying, and misuse of authority.
- **Dehumanisation:** People are treated as numbers or “targets” instead of human beings.
- **Merit obsession:** Rankings, placements, and exam scores overshadow empathy and value education.
- **Academic dishonesty:** Cheating, plagiarism, and manipulation thrive when outcomes matter more than integrity.
- **Insensitivity to inequality:** Privileged students often remain detached from rural hardship or labour struggles.

Why Ethical Education Matters for India

- **High inequality requires empathy:** Professionals must recognise dignity across caste, class, and gender.
- **Demographic dividend is fragile:** Skilled but unethical youth can worsen corruption and polarisation.
- **Democracy needs civic morality:** Respect for diversity and dissent must be nurtured early.
- **Rule of law needs ethical anchors:** Administrators must go beyond legality to uphold fairness and humanity.

Key Challenges in Building Ethical Education

- **Exam-centric culture:** Boards and entrance exams push ethics aside.

- **Lack of trained educators:** Teachers often lack tools for value-based dialogue and socio-emotional learning.
- **Weak NEP implementation:** Ethics modules remain outdated and fragmented.
- **Contradictory campus culture:** Discrimination and patronage undermine classroom ethics.
- **Plural society issues:** Fear of ideological controversy dilutes value education.

Way Forward

- **National framework:** Create a secular, constitutional-values-based ethics curriculum with age-specific outcomes.
- **Integration across subjects:** Embed ethical dilemmas in science, economics, history, and literature.
- **Teacher training:** Mandatory ethics and socio-emotional learning modules in teacher education.
- **Campus culture:** Zero tolerance for bullying and harassment; promote honour codes and student clubs.
- **Experiential learning:** Field visits, community projects, and NGO internships to connect theory with lived realities.

Conclusion

India's challenge is not a lack of talent but a **surplus of talent without conscience**. If education continues to chase excellence without ethics, it risks producing brilliant minds that damage society. Reimagining education as the **formation of morally conscious and socially just citizens** is essential for the survival of the Republic.



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