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APRIL 2026

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MAINS 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

INDEX

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

A. INDIAN CULTURE

I. Art Forms, Literature and Architecture

1. PROTECTION AND CONSERVATION OF MONUMENTS IN INDIA

Why in News?

- India has adopted a **holistic approach** to heritage conservation, linking preservation with **tourism, livelihoods, and cultural diplomacy**.

Cultural Heritage

- **Tangible:** Monuments, archaeological sites, cultural landscapes.
  - Protected under **AMASR Act, 1958** by **ASI**.
  - Examples: **Taj Mahal, Sanchi Stupa**.
- **Intangible:** Living traditions - performing arts, rituals, festivals, knowledge systems.
  - Safeguarded under **UNESCO ICH Convention (2003)**.
  - Examples: **Yoga, Vedic chanting, Buddhist chanting (Ladakh)**.

Constitutional & Legal Framework

- **Article 49:** State duty to protect monuments of national importance.
- **Seventh Schedule:**
  - **Union List (Entry 67):** National monuments under Centre.
  - **State List (Entry 12):** Other monuments under States.
- **Article 51A(f):** Fundamental duty of citizens to preserve heritage.
- **National Policy (2014):** Emphasises authenticity, minimal intervention, traditional materials, community participation.

Institutional Framework

- **Archaeological Survey of India (ASI):** Established 1861; protects **3,600+ monuments**.
- **Functions:** Structural & chemical conservation, excavations, museums, documentation. Budget 2024-25: **₹374 crore**.
- **National Mission on Monuments & Antiquities (NMMA):** Database of **11,000 sites** and **12 lakh antiquities**.

Emerging Approaches

- **Livelihood Linkages:** *Adopt a Heritage 2.0* - private partners improve amenities; boosts tourism & local crafts.
- **Cultural Festivals:** Konark & Khajuraho Dance Festivals link heritage with economy.
- **Technology:** 3D laser scanning, drones, GIS mapping, AI for manuscripts.
- **Case Study:** Kedarnath Temple restoration (post-2013 disaster) using IIT-Madras geotechnical diagnostics + traditional methods.
- **PPP Model:** *Monument Mitras* handle amenities, ASI retains conservation.
- **Digital Platforms:** Indian Culture Portal - virtual tours, 360° walkthroughs.
- **Global Recognition:** India has **44 UNESCO World Heritage Sites** (36 cultural, 7 natural, 1 mixed).

Conclusion

Heritage is now seen as a **living resource** contributing to **identity, tourism, livelihoods, and global engagement**. Sustained investment and community participation will be key for the future.

B. MODERN INDIAN HISTORY

I. Significant events, personalities, issues

1. DR. B.R. AMBEDKAR: ARCHITECT OF INDIAN CONSTITUTION AND SOCIAL JUSTICE

Why in News?

- India commemorates the birth anniversary of **B. R. Ambedkar** on April 14, celebrating his contribution to **constitutionalism and social justice**.

Early Life and Education

- Born on **April 14, 1891**, in **Mhow** into a **Dalit (Mahar) family**, he faced **severe caste-based discrimination**.
- Experienced social exclusion such as **denial of water access and segregation in schools**, shaping his reformist outlook.
- Pursued higher education at **Columbia University** and **London School of Economics**, earning **doctorates in Economics**.
- Became one of the **most educated Indian leaders of his time**, combining scholarship with activism.

Role in Freedom Struggle and Social Reform

- Led the **Mahad Satyagraha (1927)** demanding **equal access to public water resources** for Dalits.
- Participated in the **Round Table Conferences (1930-32)**, advocating political rights for **Depressed Classes**.
- Signed the **Poona Pact (1932)** with **Mahatma Gandhi**, replacing separate electorates with **reserved seats**.
- Worked for the upliftment of **Dalits, women, and labourers**, emphasizing **social democracy**.

Contribution to Indian Constitution

- As Chairman of the Drafting Committee, he played a pivotal role in framing the **Indian Constitution (1950)**.
- Ensured **Fundamental Rights**, including **Right to Equality (Articles 14-18)**.
- Abolished **untouchability under Article 17**, a landmark step towards social justice.
- Introduced provisions for **affirmative action (reservation)** for disadvantaged groups.
- Advocated **constitutional morality, rule of law, and federal structure**.

Champion of Social and Gender Justice

- Strong advocate of **women's rights**, including property rights and divorce through the **Hindu Code Bill**.
- Resigned from the Cabinet in 1951 due to delays in passing reforms, showing commitment to **gender equality**.
- Supported **labour welfare measures** such as:
  - **8-hour workday**
  - **Maternity benefits**
  - **Equal pay for equal work**

Economic and Institutional Contributions

- His work **"The Problem of the Rupee"** influenced the creation of the **Reserve Bank of India**.

- Advocated **industrialisation and state intervention** for economic development.
- Contributed to shaping institutions like the **Finance Commission and federal fiscal system**.
- Emphasised **inclusive growth and economic democracy** alongside political democracy.

Literary Contributions

- **Annihilation of Caste (1936):** Critique of caste system and social inequality.
- **The Problem of the Rupee:** Analysis of monetary policy and currency issues.
- **The Untouchables:** Study of origins of caste discrimination.
- **The Buddha and His Dhamma:** Interpretation of Buddhist philosophy promoting equality.

Conversion and Final Years

- Converted to **Buddhism in 1956 at Deekshabhoomi**, along with thousands of followers, seeking **dignity and equality**.
- Passed away on **December 6, 1956**, observed as **Mahaparinirvan Diwas**.

Significance and Legacy

- Advocated that **political democracy must be supported by social and economic democracy**.
- Laid foundation for **modern India's constitutional governance and welfare policies**.
- Inspired movements for **social justice, equality, and human rights**.
- Remains a guiding force in addressing **caste inequality and inclusive development**.

Conclusion

Dr. B.R. Ambedkar's vision transformed India into a constitutional democracy rooted in equality. His ideals continue to guide **social justice and inclusive nation-building**.

C. POST-INDEPENDENCE CONSOLIDATION AND REORGANIZATION WITHIN THE COUNTRY

1. UN SECURITY COUNCIL RESOLUTION 47 ON JAMMU & KASHMIR

Why in News?

- April 21 marks the anniversary of **United Nations Security Council Resolution 47 (1948)** on the Kashmir issue.

Background of the Resolution

- In October 1947, **tribal militias supported by Pakistan** invaded Jammu & Kashmir.
- The ruler, **Maharaja Hari Singh**, signed the **Instrument of Accession** to India seeking military assistance.
- India deployed troops and later approached the **United Nations** in January 1948 to stop external aggression.
- India expected the UN to **direct Pakistan to withdraw support to invaders**, based on legal accession.

Key Features of Resolution 47

- The resolution outlined a **three-step process** to restore peace and decide the region's future:

1. Withdrawal by Pakistan

- Pakistan was required to ensure **complete withdrawal of tribesmen and its nationals** from the region.

2. Reduction of Indian Forces

- After verification of withdrawal, India was to **reduce its military presence to minimum levels** required for law and order.

3. Plebiscite

- A **UN-appointed administrator** would conduct a **free and fair plebiscite** to decide accession to India or Pakistan.

The sequence was **conditional**, meaning later steps depended on full implementation of earlier ones.

Important Developments

- The UNSC reframed the issue as the **"India-Pakistan Question"**, treating both as disputing parties.
- During the early **Cold War**, countries like the **United States** and **United Kingdom** showed strategic inclination towards Pakistan.
- Indian leadership, including **Jawaharlal Nehru**, later expressed dissatisfaction with international handling of the issue.

Why the Plebiscite Was Never Held

- The **first condition-complete withdrawal of Pakistani forces-was never fulfilled**.
- India maintained that **demilitarisation must precede any referendum**.
- Continued mistrust and conflict prevented further implementation of the resolution.

Implications of Resolution 47

- It **internationalised the Kashmir issue**, bringing global attention and external involvement.
- Created a **framework for ceasefire**, leading to the eventual establishment of the **Line of Control (LoC)**.
- Set a precedent for **UN mediation in regional conflicts**, though with limited success.
- Generated long-term **diplomatic and strategic tensions between India and Pakistan**.

Shift to Bilateral Approach

- After the **1971 India-Pakistan War**, both countries signed the **Simla Agreement**.
- The agreement emphasised **bilateral resolution of disputes**, reducing the role of third-party mediation.
- India considers this agreement as **superseding earlier UN frameworks**, including Resolution 47.

Contemporary Relevance

- India maintains that Kashmir is a **bilateral issue**, rejecting external intervention.
- Pakistan continues to refer to **UN resolutions** to support its stance.
- The issue remains sensitive in the context of **regional stability, security, and diplomacy**.

Conclusion

UNSC Resolution 47 shaped the early trajectory of the Kashmir dispute but remained unimplemented. Today, the issue is largely viewed through the lens of **bilateral diplomacy and strategic realities.**

D. INDIAN SOCIETY

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

1. BUILDING INCLUSIVE MARKET ACCESS FOR WOMEN ENTREPRENEURS

Why in News?

- The **Womaniya initiative on Government e-Marketplace (GeM)** has enabled **over 2.1 lakh women entrepreneurs** to secure orders worth **₹28,000 crore**, surpassing mandated procurement targets and strengthening women's economic participation.

What is Womaniya?

- Launched in **2019** by the **Ministry of Commerce & Industry**.
- A dedicated **digital interface on GeM** for women-led **MSEs and SHGs**.
- Allows listing of products like **handicrafts, handloom, office supplies** for direct purchase by government ministries, PSUs, and state departments.

Key Data & Achievements

- **Registrations:** Over **2.1 lakh women MSEs** onboarded.
- **Orders: 13.7 lakh orders** secured in FY 2025-26.
- **Contract Value:** More than **₹28,000 crore**, a **27.6% growth** over the previous year.
- **Target Surpassing:** Women-led procurement accounted for **5.6% of GeM orders**, above the mandated **3% target**.

Features of the Initiative

- **Digital Onboarding:** Udyam verification + training workshops.
- **Standardised Cataloguing:** Uniform templates for easy product discovery.
- **Paperless Processes:** Fully digital bidding, invoicing, and payments.
- **Time-Bound Payments:** Ensures liquidity for micro-suppliers.
- **Outreach & Support:** Vernacular training and buyer-seller meets across states.

Impact on Women Entrepreneurs

- **Grassroots Empowerment:** By Feb 2026, **10.05 crore women mobilized into 90.09 lakh SHGs**.
- **Market Independence:** Direct access to buyers reduces reliance on intermediaries.
- **Supplier Diversity:** Expands representation of women in government procurement.
- **Sustained Mobility:** Helps transition from informal production to formal enterprises.
- **Financial Visibility:** Digital records improve creditworthiness and business growth.

Challenges

- **Digital Literacy Gaps:** Many women struggle with complex procurement tools.
- **Time Poverty:** Household responsibilities limit market engagement.
- **Information Barriers:** Lack of awareness about schemes in rural areas.
- **Decision-Making Limits:** Cultural constraints reduce autonomy in pricing/investment.
- **Collateral Issues:** Difficulty in scaling due to lack of formal assets.

Way Forward

- **Flow-Based Credit:** Use GeM and UPI footprints for underwriting nano-enterprises.
- **Vernacular Tools:** Voice-enabled, local-language procurement platforms.
- **Trust-Based Training:** Leverage SHGs for safe digital adoption.
- **Beyond Access:** Track graduation from small loans to larger capital.
- **Strengthening Agency:** Provide mentorship and market linkages for strategic control.

Conclusion

By ensuring **economic independence, representation, and visibility**, it reflects the true potential of women entrepreneurs in shaping inclusive growth.

2. DOWRY LAWS IN INDIA AND JUSTICE

Why in News?

- A recent report highlights a **conviction gap in dowry cases**, with **over 35,000 dowry deaths recorded between 2017-2022**, showing that India's strong laws remain weak in practice.

What are Dowry Laws?

- A set of **criminal and civil statutes** prohibiting the giving, taking, or demanding of dowry.
- Laws shift the **burden of proof to the accused** in cases of unnatural death within seven years of marriage.
- Designed as one of the **world's strongest gender-protection frameworks**.

Dowry Deaths and Justice Deficit in India

- **Fatalities:** Around **20 dowry deaths daily**, totalling **35,000+ in five years**.
- **Conviction Rate:** Only **11-17% nationally**; Bihar as low as **11%**.
- **Regional Concentration: 7 states (UP, Bihar, Jharkhand, MP, Odisha, Rajasthan, Haryana)** account for **80% of cases**.
- **Investigation Delays: 67% of cases pending >6 months**; only **4,500 chargesheets filed per 7,000 cases**.

Legal Framework

- **Dowry Prohibition Act, 1961:** Criminalizes dowry transactions; non-bailable offense.
- **Section 80 BNS (304-B IPC):** Defines dowry death; punishment **7 years to life imprisonment**.
- **Section 85 BNS (498-A IPC):** Punishes cruelty by husband/relatives.
- **Evidence Act (113-B):** Presumption of guilt if harassment for dowry is proven.
- **Cognizable & Non-Bailable:** Police can arrest without warrant.

Why Dowry Laws Fail in Practice

- **Police Indifference:** FIRs often discouraged; cases treated as family disputes instead of criminal offenses.
- **Weak Forensics:** Poor post-mortem procedures and inadequate evidence preservation weaken trials.
- **Witness Intimidation:** Families face threats and pressure to retract statements during prolonged trials.
- **Social Norms:** Dowry persists as a substitute for inheritance, deeply embedded in kinship systems.
- **Isolation of Women:** Migration to husband's home reduces access to natal family support networks.

Government Initiatives

- **Fast-Track Courts:** Special courts set up to expedite cases of crimes against women.
- **Witness Protection Scheme (2018):** Framework introduced to safeguard witnesses, though unevenly implemented.
- **Economic Empowerment Programs:** SHGs and NRLM initiatives aim to strengthen women's financial independence.

Way Forward

- **Standardized Protocols:** Mandatory forensic examination and scene preservation in unnatural deaths.
- **Witness Safeguards:** Treat protection as a constitutional obligation from the FIR stage.
- **Judicial Timelines:** Enforce strict deadlines in fast-track courts to prevent delays.
- **Inheritance Enforcement:** Ensure equal property rights for women to break the dowry-inheritance link.
- **Digital Evidence Use:** Systematic preservation of call records, messages, and digital proof of harassment.

Conclusion

India's dowry laws are **powerful on paper but weak in justice.** The crisis demands **rigorous investigation, swift trials, and genuine empowerment of women.** Without institutional will, laws remain **a paper shield against a national moral failure.**

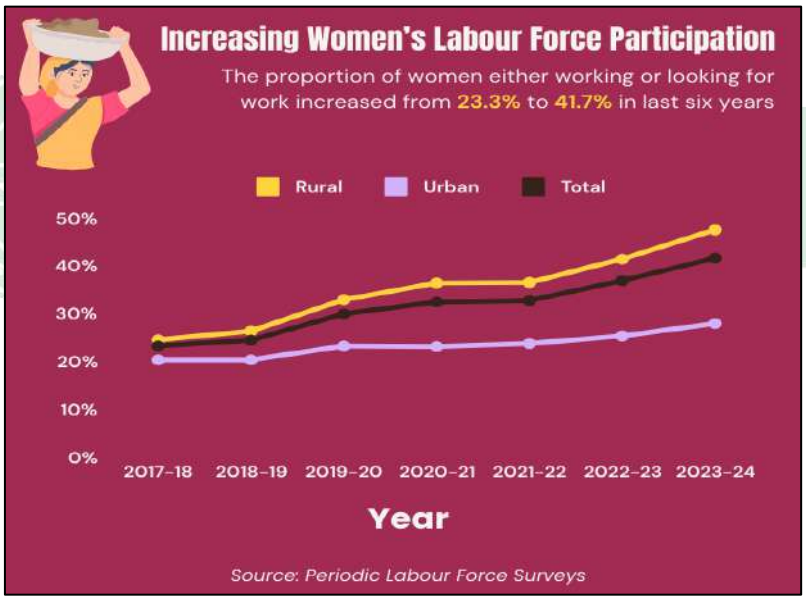
3. FEMALE LABOUR FORCE PARTICIPATION IN INDIA

Why in News?

- Delay in implementing the **Women's Reservation Act** has renewed focus on **women's participation beyond politics**, especially in the workforce.

Trends in Female Labour Force Participation

- India's **female LFPR increased to around 40% (2025)**, showing gradual improvement in recent years.
- However, it remains **below the global average (~49%)**, indicating underutilisation of women's potential.
- Emerging economies like **Brazil (~53%)** and **Vietnam (~69%)** perform significantly better.
- Growth in participation is **uneven across regions and sectors**, with concentration in informal employment.



Importance of Women's Economic Participation

- Higher FLFP contributes to **economic growth and productivity gains**, essential for achieving **developed nation status by 2047**.
- Women's leadership improves **governance outcomes and local economic performance**.
- Greater participation leads to **inclusive development, poverty reduction, and social empowerment**.

Challenges Limiting Female Participation

- **Patriarchal norms and social barriers** restrict women's mobility and employment choices.
- Limited **job opportunities in high-productivity sectors** reduce participation incentives.
- Concentration in **informal and low-wage work** affects job quality and retention.
- Lack of **childcare facilities, safety, and supportive infrastructure** discourages workforce entry.
- **Demand-side constraints** such as insufficient job creation remain a major issue.

Women in Leadership and Academia

- Women's share in **professor-level positions increased to ~29%**, but remains below parity.
- In premier institutions like **Indian Institutes of Technology (IITs)**, female faculty remains around **14%**, showing stagnation.
- In **Indian Institutes of Management (IIMs)**, representation varies between **20-30%**, indicating partial progress.
- Women face **glass ceiling barriers** in senior academic leadership roles.

Women in Business and Corporate Leadership

- Female-owned enterprises account for only **~27% of unincorporated businesses**, reflecting limited entrepreneurship.
- In senior management roles, **only about 13 women exist per 100 men**, highlighting a sharp gender gap.
- Most companies comply with the **mandatory woman director rule**, but often limit it to **1-2 members only**.
- Women rarely occupy **top leadership roles like board chairpersons**, indicating symbolic rather than substantive inclusion.

Structural Issues Behind Leadership Gap

- Lack of **mentorship, networking opportunities, and institutional support** for women.
- Workplace bias and **gender stereotypes in hiring and promotions**.
- Absence of **critical mass (around 30%)** reduces women's influence in decision-making.
- Weak implementation of **gender-sensitive workplace policies**.

Way Forward

- Promote **labour-intensive industries** to create employment opportunities for women.
- Strengthen **skill development and education aligned with market needs**.
- Improve **childcare, safety, and workplace flexibility policies**.
- Encourage **women entrepreneurship through financial and institutional support**.
- Ensure **greater representation in leadership positions** through policy interventions.

Conclusion

India's female workforce participation is improving, but leadership gaps remain significant. Achieving true empowerment requires **both higher participation and meaningful representation.**

E. GEOGRAPHY

I. Key Natural Resources

1. INDIA'S WATER CRISIS BEYOND RESOURCE SCARCITY

Why in News?

- Recent deaths due to **water contamination in Haryana (Chhainsa) and Indore** underline that India's water crisis is not just about scarcity but stems from **poor governance and infrastructure mismanagement**.

What is the Issue?

- India follows a **linear, supply-focused model** (pipes, dams) while ignoring the **circular lifecycle of water**.
- Water is treated as an **engineered commodity**, not an **ecological system**, leading to contamination even in cities with advanced networks.

Key Data & Statistics

- **Global Share:** India has **4% of world's freshwater** but sustains **17% of global population**.
- **Groundwater Dependence:** Largest user globally; **60% rural population** relies almost entirely on it.
- **Urban Inequity:** In Delhi, per capita supply in some zones is only **20-40 gallons/day vs benchmark 60 GPCD**.
- **Non-Revenue Water: 51-53% of daily supply lost** due to leakages, theft, or poor metering.
- **Funding Bias: 62% of urban funds** go to supply projects, only **3% to rejuvenating water bodies**.

Why It's Not Just Scarcity

- **Infrastructure Neglect:** Corroded pipelines near sewer lines cause contamination.
- **Poor Mapping:** Agencies lack updated pipeline maps, hindering leak detection.
- **Institutional Silos:** Water boards work in isolation, limiting coordination.
- **Loss of Reservoirs:** Lakes and ponds encroached, reducing recharge capacity.
- **Data Gaps:** Technical data often locked with private consultants, not public health systems.

Demand & Management Issues

- **Urban Expansion:** Concretization blocks rainwater percolation.
- **Linear Use:** Wastewater discharged instead of recycled.
- **External Dependence:** Cities like Delhi draw **90% water from distant dams**, ignoring local harvesting.
- **Agricultural Pollution:** Irrigation canals contaminated with sewage.
- **Community Disengagement:** Citizens treated as subscribers, not stakeholders.

Initiatives Taken

- **AMRUT & SBM-U 2.0:** ₹1.93 lakh crore for urban water and sewerage.
- **Atal Bhujal Yojana:** Community-led groundwater management.
- **Jal Jeevan Mission (Urban):** Universal tap coverage.
- **Mandatory RWH:** Rainwater harvesting required in new buildings.

Way Forward

- **Water-Sensitive Urban Design (WSUD):** Integrate ecology, hydrology, sociology with engineering.
- **Circular Water Economy:** Decentralized STPs to recycle wastewater.
- **Aquifer Restoration:** Protect and desilt urban lakes/ponds.
- **Digital Monitoring:** Flow meters, SCADA to track leakages.
- **Community Partnership:** Empower locals to manage water sources.

Conclusion

Preventing contamination deaths requires shifting from a **supply-obsessed model** to **water-sensitive design**, recycling wastewater, and involving communities as partners in sustainable management.

2. THE RIVER BASIN MANAGEMENT SCHEME AND STRENGTHENING WATER GOVERNANCE

Why in News?

- The Government of India has approved the **continuation of the River Basin Management (RBM) Scheme** for **2026-27 to 2030-31**, with an **enhanced budget of ₹2,183 crore** to strengthen integrated water governance.

What is the RBM Scheme?

- A framework under the **Ministry of Jal Shakti** for **scientific and integrated river basin management**.
- Moves from **localized projects** to a **basin-level approach**, treating rivers, tributaries, groundwater, and ecosystems as **one hydrological unit**.

Achievements

- **Funding Increase:** Outlay raised from **₹1,276 crore → ₹2,183 crore**.
- **Project Pipeline:** NWDA identified **30 river link projects**; **26 feasibility reports** and **15 DPRs** completed.
- **Regional Focus:** Prioritizes **North East and Indus Basin** for strategic water security.
- **Technology Use:** LiDAR and drone surveys enhance accuracy of basin master plans across **11 sub-sectors**.

Features of RBM

- **Integrated Basin Planning:** Master Plans for irrigation, hydropower, navigation.
- **Scientific Surveys:** GIS, remote sensing, hydrological modeling for DPRs.
- **Interlinking of Rivers (ILR):** NWDA plans inter-basin transfers to balance surplus vs deficit water.
- **Flood & Erosion Control:** Protection of **Majuli Island**, raised platforms in flood-prone North East.
- **Community Interventions:** Springshed management and indigenous practices in tribal regions.

Need for Strong Water Governance

- **Climate Variability:** Erratic monsoons, marine heatwaves demand resilient planning.
- **Water Scarcity:** Rising demand from agriculture and industry.
- **Cross-Border Rivers:** Indus and Brahmaputra require data for diplomacy.
- **Disaster Mitigation:** Drainage planning to prevent waterlogging and erosion.
- **Socio-Economic Link:** Reliable water access vital for **400-490 million informal workers**.

Challenges

- **Difficult Terrain:** Remote areas in J&K and North East delay projects.
- **Inter-State Disputes:** Legal/political friction over water allocation.

- **Data Deficit:** Lack of real-time monitoring hampers streamflow prediction.
- **Ecological Concerns:** Balancing dams/canals with biodiversity protection.
- **Fiscal Strain:** Anti-erosion works in rivers like Brahmaputra exceed estimates.

Way Forward

- **Modern Tech:** Expand LiDAR/drone surveys for flood forecasting.
- **Capacity Building:** Train state officers via institutes like NEHARI.
- **Springshed Focus:** Rejuvenate natural springs in hilly regions.
- **Better Coordination:** Strengthen synergy between CWC, NWDA, Brahmaputra Board.
- **Community Role:** Incentivize tribal/local participation in water management.

Conclusion

The RBM Scheme success will determine India's ability to manage rising **climate risks, water demand, and cross-border challenges**, ensuring resilient and inclusive growth.

3. BAUXITE DISTRIBUTION AND ODISHA MINING CONFLICT

Why in News?

- Clashes in **Odisha** over a proposed **bauxite mining project** have raised concerns about **tribal rights and resource governance**.

Global Distribution of Bauxite

- **Australia** is the **largest producer and exporter**, with high-quality reserves.
- **Guinea** holds some of the **largest reserves globally**.
- **Brazil** has major deposits in the **Amazon basin region**.
- **China** is a key producer but with **lower-grade ore**.
- **Indonesia** and **Jamaica** are important contributors to global supply.

Distribution depends on **hot, humid climatic conditions** favoring laterite formation.

Bauxite Distribution in India

- India is among the **top global producers of bauxite**, with deposits mainly in **Eastern and Western Ghats**.
- **Odisha** holds about **40%+ reserves and ~70% production**, making it the leading state.
- Other major states include:
  - **Andhra Pradesh** and **Gujarat** (significant reserves)
  - **Jharkhand**, **Maharashtra**, **Chhattisgarh** (moderate producers)
- Bauxite is refined into **alumina**, which is further processed into **aluminium**, widely used due to its **lightweight, strength, and conductivity**.

Significance of Bauxite

- Acts as a **core raw material for aluminium industry**, critical for economic development.
- Supports sectors like **transportation, renewable energy, defence, and construction**.
- Contributes to **exports, industrial growth, and employment generation**.
- Plays a role in **energy transition technologies** like electric vehicles and solar panels.

Odisha Mining Conflict: Key Issues

- Conflict emerged in **Rayagada-Kalahandi region** over the **Sijimali bauxite project**.

- Local **tribal communities** opposed mining due to **displacement and livelihood loss concerns**.
- Allegations of **improper Gram Sabha consent** under the **Forest Rights Act (FRA), 2006**.
- Police action and protests indicate **breakdown of trust between administration and locals**.
- The project received **Stage-1 forest clearance**, subject to environmental safeguards.

Historical Context

- Similar conflict occurred in **Niyamgiri Hills**, where mining was stopped after **Supreme Court intervention (2013)**.
- Tribal communities like **Dongria Kondh** successfully defended their **cultural and ecological rights**.

Key Challenges

- **Tribal Rights vs Development:** Balancing **economic growth with indigenous rights protection** remains difficult.
- **Environmental Concerns:** Mining threatens **forests, biodiversity, and water resources** in ecologically sensitive areas.
- **Governance Issues:** Weak implementation of **FRA and consultation processes** reduces credibility.
- **Corporate vs Community Interests:** Conflicts arise due to **unequal power dynamics and lack of transparency**.

Way Forward

- Ensure **free, prior, and informed consent of Gram Sabhas** under FRA provisions.
- Strengthen **environmental impact assessments and monitoring mechanisms**.
- Promote **sustainable mining practices** with rehabilitation and compensation measures.
- Encourage **community participation and benefit-sharing models**.
- Balance **resource extraction with ecological conservation and social justice**.

Conclusion

Bauxite mining highlights the conflict between development and tribal rights in India. A balanced approach ensuring **sustainability, equity, and lawful governance is essential.**

II. Important Geophysical Phenomena

1. THE LEGISLATIVE VACUUM IN INDIA'S HEAT CRISIS

Why in News?

- Researchers have warned of a **critical legislative gap** in India's response to heatwaves.

What is the Issue?

- The "legislative vacuum" refers to the **absence of binding laws** protecting informal and outdoor workers from extreme heat.
- Current labour codes and disaster frameworks treat heat protection as **advisory**, not a **legal right under Article 21 (Right to Health)**.

Data & Statistics

- **Geographic Spread:** Heatwaves now affect **57% of districts**, including coastal and temperate zones.

- **Workforce at Risk: 400-490 million informal workers** (construction, vending, gig work) lack cooling autonomy.
- **Health Impact:** Sanitation workers face **5% higher micro-climate temperatures** due to fumes and heated waste.
- **Productivity Loss:** Even small temperature rises reduce work output, forcing workers to choose between **health and income**.

Reasons for Rising Heatwaves

- **Climate Change:** Global warming increases frequency and duration of heat extremes.
- **Urban Heat Islands:** Concrete-heavy cities trap heat, worsening micro-climates.
- **Humidity + Heat:** Coastal wet-bulb temperatures prevent natural cooling.
- **Atmospheric Shifts:** Weakening winds and jet stream changes prolong heat domes.
- **Deforestation:** Loss of green cover reduces natural cooling.

Existing Legal Gaps

- **Factories Act (1948):** Covers only indoor workers, excluding outdoor labour.
- **OSHWC Code (2020):** Omits outdoor heat as a mandatory safety concern.
- **Section 23 Discretion:** Standards for weather safety left optional, not binding.
- **Disaster Fund Limits:** Heatwaves not listed as "national disasters"; states can use only **10% of disaster funds**.
- **Gig Worker Exclusion:** Classified as contractors, denying them employer safety nets.

NDMA Guidelines (Advisory Only)

- **Heat Action Plans (HAPs):** Early warnings, medical coordination.
- **Cooling Spaces:** Temporary shelters, water kiosks, cool roofs.
- **Workplace Adjustments:** Shift outdoor work hours away from peak heat.
- **Inter-Agency Coordination:** Hospitals, ULBs, transport authorities to reduce mortality.

Way Forward

- **National Disaster Notification:** Include heatwaves in the official disaster list.
- **Heat Index Trigger:** Use temperature + humidity for safety protocols.
- **Binding Standards:** Mandate work-rest cycles, PPE under OSHWC Code.
- **Right to Cool:** Recognize thermal safety as part of **Article 21**.
- **Financial Safeguards:** Introduce **parametric heat insurance** for informal workers.

Conclusion

Bridging the legislative vacuum with **constitutional rights, binding standards, and financial safeguards** is essential to protect millions of vulnerable workers from a growing climate threat.

2. MARINE SPATIAL PLANNING (MSP): ODISHA LEADS THE INITIATIVE

Why in News?

- **Odisha** has partnered with the **National Centre for Coastal Research (NCCR)** to implement **Marine Spatial Planning (MSP)** for **coastal management**. It is the **first Indian state** to adopt MSP under the **Indo-Norway Ocean initiative (2019)**.

Marine Spatial Planning (MSP): Key Features

- MSP involves **mapping marine areas** and allocating **zones for different activities**.

- It integrates **economic, environmental, and social objectives**.
- Key sectors covered:
  - **Fisheries and aquaculture**
  - **Ports and shipping**
  - **Tourism**
  - **Offshore energy (wind, tidal)**
  - **Biodiversity conservation**
- It follows a **data-driven, ecosystem-based approach**.
- Helps reduce **conflicts among stakeholders** like **fishermen, industries, and conservation groups**.

Role of NCCR in MSP

- The **National Centre for Coastal Research** plays a **central implementation role**.

Functions

- **Shoreline monitoring:** Tracks **coastal erosion and changes** using satellite data.
- **Pollution assessment:** Studies **microplastics, heavy metals, and water quality**.
- **Disaster tools:** Develops **coastal flood warning systems** for hazard mitigation.
- **Ecosystem studies:** Research on **mangroves, coral reefs, and biodiversity**.
- **Capacity building:** Provides **training and awareness in marine sciences**.

Marine Spatial Planning in Odisha: Significance

1. Strategic Coastal Importance

- **Odisha has ~550 km coastline** with **diverse ecosystems supporting livelihoods**.

2. Scientific and Data-Driven Planning

- MSP uses **ocean data like salinity, temperature, and seabed mapping**.
- It allocates zones for **tourism, fisheries, aquaculture, and seaweed farming**.

3. Boost to Blue Economy

- MSP promotes **fisheries, ports, tourism, and marine industries for growth**.
- It ensures **inclusive development benefiting coastal communities and livelihoods**.

4. Environmental Sustainability

- MSP regulates activities to prevent **over-exploitation of marine resources**.
- It conserves **mangroves, seagrass, and critical coastal biodiversity habitats**.

5. Climate Resilience

- MSP improves adaptation to **cyclones, flooding, and sea-level rise**.
- It integrates **disaster risk reduction into coastal planning frameworks**.

Odisha Marine Biotechnology Corridor (OMBRIC)

- Odisha launched **OMBRIC (2025)** to **complement MSP implementation**.

Key Objectives

- Promote **marine biotechnology research and innovation**
- Support **startups and marine-based enterprises**
- Encourage **eco-friendly and sustainable industries**
- Improve **livelihood opportunities for coastal communities**

Challenges

- **Limited marine data availability** restricts effective **spatial planning decisions**.
- **Weak inter-agency coordination** leads to **delays and policy overlaps**.
- Balancing **economic development with environmental conservation** remains difficult.
- Lack of **technical expertise, funding, and awareness** affects implementation.

Way Forward

- Strengthen **Centre-State coordination** for **integrated MSP implementation**.
- Improve **scientific research, data systems, and real-time monitoring**.
- Ensure **community participation for inclusive coastal development**.
- Align MSP with **Sagarmala Programme and CRZ norms** for policy coherence.

Conclusion

Marine Spatial Planning marks a shift towards sustainable ocean governance, balancing growth with conservation. It can make India's **blue economy more inclusive, resilient, and future-ready.**

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

A. POLITY

I. Preamble, Basic structure and amendability of the Constitution

1. How is a Constitution Amendment Bill passed?

Why in the news?

- The Lok Sabha is currently debating the **Constitution (131st Amendment) Bill, 2026**, which proposes changes to increase the size and composition of the Lok Sabha and State Legislative Assemblies.

Constitutional Amendment Framework in India

- **Meaning of Amendment:** A Constitution Amendment modifies, adds, or repeals provisions to adapt governance to evolving needs.
- **Initiation Power:** Only Parliament can introduce amendment Bills in either House, reflecting central legislative authority.
- **Legal Basis:** Article 368 provides the core procedure for constitutional amendments in India.

Types of Constitutional Amendments

- **Simple Majority Method:** Amendments outside Article 368 passed like ordinary laws, such as changes in state boundaries.
- **Special Majority Method:** Requires majority of total membership and two-thirds of members present and voting in both Houses.
- **Special Majority with State Ratification:** Needs approval by at least half of State Legislatures for federal provisions.

Significance of Constitutional Amendments

- **Democratic Adaptation:** Enables Constitution to remain relevant with changing socio-economic and political conditions.
- **Federal Balance:** Adjusts representation based on population changes, ensuring equitable political participation.
- **Social Justice:** Facilitates progressive reforms such as reservations and inclusive governance measures.
- **Institutional Strengthening:** Allows expansion of legislatures to reflect demographic growth and governance needs.

Key Issues in 131st Amendment Bill

- **Expansion of Representation:** Proposal to increase seats in Lok Sabha and State Assemblies to reflect population growth.
- **Delimitation Concerns:** Redistribution of seats may create regional disparities between high and low population states.
- **Federal Implications:** Changes may affect balance of power between states and Union.

Challenges in Amendment Process

- **Political Consensus:** Achieving required majority is difficult in coalition and fragmented political landscape.
- **Federal Sensitivities:** States may oppose perceived centralisation or unequal representation.

- **Judicial Limitations:** Amendments must comply with basic structure doctrine enforced by Supreme Court.
- **Risk of Over-Amendment:** Frequent changes may undermine constitutional stability and continuity.

Way Forward

- **Consensus Building:** Engage opposition and states to ensure wider acceptance and legitimacy of amendments.
- **Transparent Deliberation:** Promote public consultation and informed parliamentary debate.
- **Protecting Federalism:** Maintain balance between central authority and state autonomy.
- **Periodic Review Mechanism:** Ensure Constitution evolves with emerging socio-economic and technological changes.

II. Fundamental Rights, DPSPs and Fundamental Duties

1. Electoral Roll and Voting Rights in India

Why in the news?

- Supreme Court criticised Election Commission's voter roll revision, highlighting fairness, due process, and sentimental value of voting rights.

Electoral Roll and Voting Rights in India

- **Constitutional Basis:** Voting right flows from statutory provisions under Representation of the People Act, ensuring democratic participation and equality.
- **Sentimental Dimension:** Supreme Court emphasised voting as expression of patriotism and belonging, beyond a mere legal entitlement.
- **Role of Election Commission of India:** Constitutional body responsible for preparing and revising electoral rolls to ensure free and fair elections.

Concerns Highlighted by Supreme Court

- **Fairness and Equality:** Court stressed that voter exclusion should not be arbitrary and must maintain uniform standards across States.
- **Due Process Requirements:** Emphasised need for proper hearing, transparency, and reasoned decision-making in electoral roll revisions.
- **Burden on Appellate Mechanism:** Large number of appeals indicated systemic flaws and inefficiency in grievance redressal.
- **Protection of Democratic Rights:** Court reiterated importance of safeguarding voter inclusion as core to democratic legitimacy.

Need for Robust Appellate Mechanism

- **Accessible Grievance Redressal:** Appeals process must be simple, timely, and citizen-friendly to prevent disenfranchisement.
- **Judicial Oversight:** Independent supervision ensures accountability and prevents misuse of administrative discretion.
- **Time Adequacy:** Sufficient time before elections is essential to resolve disputes without affecting electoral integrity.

Way Forward

- **Standardised Criteria:** Uniform guidelines for voter verification to avoid arbitrary classifications like "logical discrepancy".

- **Technology Integration:** Use of digital verification with safeguards to reduce errors and improve transparency.
- **Strengthening Institutional Trust:** Consistency in Election Commission actions to maintain public confidence in electoral processes.
- **Balancing Purity and Inclusion:** Electoral roll accuracy must not come at the cost of excluding genuine voters.

III. Parliament and State legislatures

1. Delimitation Bill

Why in the news?

- Failed passage of delimitation-linked bills and debates over post-2026 seat redistribution have revived concerns on federal balance and representation

Delimitation in India

- **Meaning and Scope**: Refers to fixing Lok Sabha seats, state-wise allocation, and redrawing constituencies based on census data.
- **Constitutional Basis**: Article 81 ensures proportional representation, while Article 82 mandates periodic readjustment after every census.
- **Core Democratic Principle**: Upholds "one person, one vote" by ensuring equal weightage of votes through similar-sized constituencies.

Freeze on Delimitation (1976 onwards)

- **42nd Constitutional Amendment Act, 1976**: Froze seat allocation based on 1971 Census to avoid penalising states with successful population control.
- **Extension through 84th Amendment Act, 2001**: Continued freeze till post-2026 census due to coalition pressures and regional concerns.
- **Underlying Reason**: Fiscal and political considerations dominated, preserving representation of economically advanced states.

Consequences of Delimitation Freeze

- **Under-representation**: Constituencies have become excessively large, reducing effectiveness of representation and accountability of Members of Parliament.
- **Malapportionment**: Unequal vote value across states; e.g., Bihar voters underrepresented compared to Kerala, violating electoral equality.
- **Outdated Representation**: Current system relies on 1971 population, ignoring demographic and economic transformations.

Federal Concerns and Regional Imbalance

- **North-South Divide**: Southern states fear loss of seats due to lower population growth, while northern states may gain representation.
- **Fiscal Implications**: Reduced seat share weakens influence over tax devolution, despite higher revenue contribution by developed states.
- **Cultural and Linguistic Anxiety**: Perceived dominance of Hindi-speaking regions raises concerns over cultural autonomy and diversity.

Way Forward

- **Expand Lok Sabha Strength**: Increase seats to reduce constituency size without drastically altering state-wise balance.
- **Reform Fiscal Federalism**: Ensure greater financial autonomy for states by revising tax devolution formula.
- **Strengthen Rajya Sabha**: Provide equal state representation and greater powers, including say over Money Bills.
- **Balanced Delimitation Approach**: Combine population criteria with federal safeguards to maintain equity and unity.

IV. The Executive (of the Union and the States/UTs)

1. Tenure of Prime Minister

Why in News?

- India's longest-serving elected executive milestone has reignited debate on absence of term limits and effectiveness of parliamentary accountability mechanisms.

Constitutional Design and Rationale

- **No Term Limits**: The Constitution does not restrict tenure of Prime Minister or Chief Minister.
- **Ambedkar's Vision**: Emphasised continuous parliamentary control through accountability mechanisms instead of fixed tenure caps.
- **Legislative Oversight**: Instruments like Question Hour and no-confidence motions ensure day-to-day scrutiny.
- **Electoral Check**: Periodic elections provide opportunity for public evaluation of leadership.
- **Tenth Schedule Constraint**: Disqualifies legislators voting against party whip, limiting independent decision-making.
- **Reduced Accountability**: Weakens effectiveness of no-confidence motions when ruling party commands majority.

Arguments Against Restricting Executive Tenure

- **Democratic Choice**: Term limits restrict voters' right to re-elect a leader of their choice, limiting popular sovereignty.
- **Continuity in Governance**: Long tenure ensures policy stability and effective implementation of long-term reforms.
- **Experience and Expertise**: Experienced leaders provide administrative efficiency and better decision-making in complex governance.
- **Parliamentary Accountability**: Executive remains accountable to legislature through no-confidence motions and daily scrutiny mechanisms.
- **Electoral Check Sufficiency**: Regular elections provide adequate opportunity for citizens to remove underperforming governments.
- **Risk of Weak Leadership**: Forced leadership change may bring inexperienced or unstable leadership.
- **Political Instability**: Frequent leadership changes may disrupt governance and policy continuity.
- **Comparative Parliamentary Practice**: Many parliamentary democracies do not impose term limits, relying on legislative confidence.

Arguments in Favor of Restricting Executive Tenure

- **Prevention of Power Concentration**: Term limits curb excessive accumulation of power and reduce risks of authoritarian tendencies.

- **Strengthening Democracy**: Ensures regular leadership change, promoting political competition and democratic vitality.
- **Checks Incumbency Advantage**: Limits prolonged access to state resources, media influence, and institutional control.
- **Protection of Institutions**: Reduces scope for executive influence over judiciary, Election Commission, and regulatory bodies.
- **Encourages Leadership Renewal**: Creates opportunities for new leaders, ideas, and intra-party democracy.
- **Mitigates Democratic Backsliding**: Prevents gradual erosion of checks and balances through long incumbency.
- **Global Best Practices**: Many countries adopt term limits to safeguard democratic governance.

V. Representation of People's Act

1. Inner Party Democracy

Why in the news?

- The recent split of MPs from the AAP highlighted the urgent need to reinforce internal democracy within political parties.

Defection and "Merger" under Constitutional Framework

- **Tenth Schedule Provisions**: Anti-defection law disqualifies legislators switching parties, with exception if two-thirds members agree to merge with another party.
- **Merger Clause Ambiguity**: Lack of clarity whether merger must occur at political party level or only legislature party creates legal uncertainty.
- **Judicial Interpretation**: Supreme Court in Subhash Desai vs Principal Secretary, Governor of Maharashtra (2023) distinguished political party from legislature party, emphasizing party supremacy.

Institutional Role and Limitations

- **Election Commission Powers**: Election Commission of India derives authority from Article 324 and registers parties under Representation of the People Act, 1950.
- **Limited Regulatory Authority**: Supreme Court in Indian National Congress (I) vs Institute of Social Welfare (2002) held that ECI cannot deregister parties for internal violations.
- **Quasi-Judicial Delays**: Adjudication of factional disputes is time-consuming, weakening timely enforcement of anti-defection provisions.

Core Issue: Weak Internal Party Democracy

- **Absence of Party Constitutions**: Out of thousands of registered parties, very few have publicly available constitutions, leading to opaque functioning.
- **Leadership Centralisation**: Many parties operate as personality-driven entities, limiting dissent and institutional decision-making.
- **Disconnect between Party and Legislature Wing**: Lack of clear rules on leadership, whip appointment, and decision-making fuels disputes during defections.

Implications for Indian Democracy

- **Erosion of Constitutional Morality**: Frequent defections through technical loopholes undermine spirit of representative democracy.
- **Political Instability**: Opportunistic mergers weaken electoral mandates and governance continuity.

- **Voter Disillusionment**: Public trust declines when elected representatives switch allegiances without accountability.

Reform Measures

- **Mandatory Party Constitution**: Legal requirement for comprehensive internal rules on leadership selection, discipline, and merger procedures.
- **Empowering Election Commission**: Grant powers to suspend or deregister parties for non-compliance with democratic norms.
- **Strengthening Anti-Defection Law**: Clarify merger provisions to require alignment with original political party decisions.
- **Institutionalising Internal Democracy**: Ensure member participation, internal elections, and grievance redressal mechanisms.

Global Practices and Recommendations

- **Law Commission Suggestions**: 170th Report recommended regulating internal party functioning through statutory provisions.
- **Comparative Models**: European democracies mandate internal elections, member participation, and arbitration bodies within parties.
- **Need for Legal Backing**: Draft Political Parties Regulation Bill can formalise democratic practices within parties.

Conclusion

Strengthening internal party democracy and clarifying anti-defection provisions are essential to uphold constitutional values and political stability.

B. GOVERNANCE

I. Government policies and Interventions

1. Foreign Contribution (Regulation) Amendment (FCRA) Bill, 2026

Why in the news?

- The Union government postponed discussion on the Foreign Contribution (Regulation) Amendment Bill, 2026.

Background of the Foreign Contribution (Regulation) Act

- **Origin**: The Foreign Contribution (Regulation) Act (FCRA) was enacted in 1976 during the Emergency to regulate foreign funding and prevent external interference.
- **2010 Framework**: The 2010 Act consolidated laws governing acceptance and utilisation of foreign contributions for specified purposes.
- **Subsequent Amendments**: Amendments in 2016, 2018, and 2020 increased scrutiny and tightened regulatory mechanisms over NGOs.

Key Provisions of the 2026 Amendment Bill

- **Designated Authority**: The Bill empowers the government to appoint an authority to manage assets and foreign funds of organisations whose registration ceases.
- **Asset Control and Transfer**: It allows temporary or permanent takeover of assets, including transfer to government bodies or disposal.

- **Renewal and Cancellation Rules**: Registration is deemed ceased if renewal is not applied for, denied, or not obtained within the stipulated time.
- **Religious Institutions Clause**: The authority can manage places of worship while ensuring their religious character is maintained.

Issues and Concerns

- **Executive Overreach**: Concentration of power in the designated authority raises concerns about excessive state control over NGOs.
- **Impact on Civil Society**: NGOs dependent on foreign funds may face operational uncertainty and reduced autonomy.
- **Minority Concerns**: Religious institutions fear administrative takeover of assets, especially in states like Kerala.
- **Constitutional Implications**: Potential conflict with fundamental rights such as freedom of association (Article 19) and minority rights (Article 30).

Justification of the Bill

- **National Security Concerns**: The government argues that stricter regulation is necessary to prevent misuse of foreign funds.
- **Administrative Efficiency**: The Bill aims to address gaps like ambiguity in asset handling, lack of timelines, and inconsistent penalties.

Way Forward

- **Need for Wider Consultation**: Engage stakeholders, including civil society and minority institutions, to build consensus.
- **Institutional Safeguards**: Introduce checks to prevent arbitrary use of powers by the designated authority.
- **Balanced Approach**: Ensure regulation of foreign funding while protecting democratic freedoms and institutional autonomy.

2. Central Armed Police Forces (General) Administration Act

Why in the news?

- Centre notified the Central Armed Police Forces (General) Administration Act after the assent from President.

Background: Supreme Court Verdict

- **Judicial Directive**: In Supreme Court verdict on IPS deputation in CAPFs, the Court ordered a phased reduction of IPS deputation in senior CAPF posts.
- **Rationale of the Court**: The judgment highlighted stagnation in promotions of CAPF cadre officers, affecting morale and efficiency.
- **Review Petition Rejected**: The Court reaffirmed its stance by dismissing the Centre's review petition, strengthening judicial intent.

Key Provisions

- **Umbrella Legislation**: The Act provide a comprehensive framework for recruitment, promotions, deputation, and service conditions of CAPF officers.
- **Overriding Clause**: It empowers the Ministry of Home Affairs to frame rules overriding existing laws and judicial directions in case of inconsistency.
- **Deputation Quotas**: It mandates significant deputation of IPS officers, including 50% at Inspector General level and exclusive deputation at Director General level.

- **Centralised Control**: It defines the Central government as the Ministry of Home Affairs, centralising administrative authority over CAPFs.

Issues and Concerns

- **Judicial Overreach vs Legislative Override**: It may dilute the authority of the Supreme Court by effectively bypassing its directive.
- **Career Stagnation in CAPFs**: Continued IPS dominance may limit promotion opportunities and delay career progression of CAPF officers.
- **Morale and Operational Efficiency**: Perceived inequality in leadership roles could affect motivation of officers engaged in ground-level operations.
- **Service Disparities**: Lack of proper implementation of non-functional upgradation creates pay and status disadvantages for CAPF officers.

Justification

- **Coordination with States**: IPS officers ensure better coordination with state police and administration.
- **Operational Efficiency**: Deputation is seen as necessary for maintaining uniformity, expertise, and national security management.
- **Administrative Clarity**: It aims to harmonise service conditions and address legal ambiguities in CAPF administration.

Way Forward

- **Balanced Cadre Management**: Ensure a gradual increase in promotions for CAPF officers while maintaining necessary deputation.
- **Institutional Reforms**: Implement non-functional upgradation and ensure parity with other Group A services.
- **Respect for Judicial Directions**: Align legislative measures with constitutional principles and judicial pronouncements.
- **Stakeholder Consultation**: Engage CAPF officers and experts to evolve a fair and transparent service structure.

3. Report on Land Inequality in India

Why in the news?

- Report titled **"Land inequality in India: Nature, history, and markets,"** encompasses data from **ten major Indian states** (~ 75% of rural population).

Key Findings of the Study

- **High Concentration of Land Ownership:** The top **10%** of rural households own **44%** of total land, indicating a high concentration of land ownership.
- **Widespread Landlessness:** Nearly 46% of rural Indian households are entirely landless.
- **Village-levelland Gini Coefficients:** extremely high at 71.1.
- **Dominant Landlords:** In an average village, the single largest landholder controls roughly 12.4% of the land.

Key Drivers of Land Inequality in India

- **Colonial Tenure:** Regions formerly under the Britishzamindari (landlord) system exhibit higher inequality, vis-à-vis "princely states".
- **Social Stratification:** Villages with a higher proportion of Scheduled Caste (SC) populations face higher inequality, due to historical landlessness.

- Economic integration alters the profitability of farming relative to non-agricultural activities, incentivizing smallholders to sell their non-viable plots to larger landowners.

Steps Taken to Reduce Land Inequality in India

- **Abolition of Intermediaries**: Zamindari, Jagirdari systems removed to establish direct relation between state and cultivators.
- **Tenancy Reforms**: Security of tenure, fair rent, and ownership rights granted to tenants.
- **Land Ceiling Laws**: Imposed limits on land holdings and redistributed surplus land to landless.
- **Consolidation of Holdings**: Fragmented lands reorganised to improve productivity and equity.
- **Bhoodan Movement**: Voluntary land donation led by Acharya Vinoba Bhave for distribution to landless.
- **Gramdan Concept**: Entire villages pooled land for equitable redistribution.
- **Distribution of Surplus Land**: State-led allocation of ceiling-surplus land to marginal farmers.
- **SVAMITVA Scheme**: Provides property ownership records in rural areas.
- **Land Leasing Reforms**: Legalising tenancy to protect farmers and improve land use.
- **Women Land Rights**: Policies promoting joint ownership and inheritance rights for women.

Challenges in Land Reforms

- **Resistance** from powerful landed elites hindered effective reform implementation, especially in states with strong landlord influence.
- **Lack of updated and clear land records** led to disputes, litigation, and exclusion of rightful beneficiaries.
- **Tenancy reforms** remained incomplete, with many tenants lacking formal recognition and security of tenure.
- **Social barriers**, including caste-based discrimination, continued to restrict access to land for marginalized communities.
- **Land is a State subject** under the Constitution, so states play a primary role in implementing land reforms.

Way Forward

- Special measures should be taken to improve land access for **marginalized communities**, including **joint land titles and targeted redistribution programmes.**
- **Promotion of land leasing frameworks** and **contract farming** should be encouraged, as recommended by NITI Aayog, to improve efficiency without disturbing ownership rights.
- **Support for small and marginal farmers** should be enhanced through access to institutional credit, irrigation, technology, and Farmer Producer Organisations (FPOs) to reduce distress land sales.

4. Jan Vishwas Bill 2026

Why in the news?

- Jan Vishwas Bill 2026 proposes large-scale decriminalisation of minor offences to promote ease of doing business and reduce judicial burden.

Rationale Behind the Bill

- **Over-Criminalisation Issue**: Minor procedural lapses earlier attracted criminal penalties, creating compliance burden.
- **Proportionality Principle**: Aligns punishment with severity of offence.
- **Judicial Burden**: Large number of minor cases clog courts.
- **MSME Challenges**: Small businesses face disproportionate compliance risks.

Key Provisions of the Bill

- **Decriminalisation Scope**: 717 provisions across 79 Central Acts proposed for decriminalisation.
- **Civil Penalties**: Replaces imprisonment with monetary fines.
- **Graded Response Mechanism**: Warnings and notices for first-time or minor defaults.
- **Compounding Mechanism**: Enables quicker resolution without lengthy trials.
- **Adjudication System**: Officers empowered to decide cases within timelines.

Offences Being Decriminalised

- **Procedural Lapses**: Delays in filings, documentation errors, and technical non-compliance.
- **Minor Regulatory Defaults**: Non-serious violations without intent or harm. **Administrative Non-Compliance**: Routine violations lacking criminal intent.
- **Exclusions**: Serious offences like fraud, wilful evasion, and public safety threats remain criminal.

Need to Remove Jail Terms

- **Ease of Doing Business**: Reduces fear of prosecution for minor errors.
- **Encouraging Compliance**: Promotes voluntary adherence to regulations.
- **Fairness and Equity**: Prevents harsh punishment for non-serious violations.
- **Efficient Justice**: Frees courts for serious criminal cases.

Challenges and Concerns

- **Administrative Discretion**: Risk of arbitrary decisions by authorities.
- **Implementation Gaps**: Variation across sectors and ministries.
- **Penalty Burden**: Monetary fines may still affect small businesses.
- **Weak Oversight**: Appellate mechanisms need strengthening.

Conclusion

Effective implementation, clear guidelines, and strong oversight are essential to ensure balanced, fair, and efficient regulatory governance.

5. Legal Consequences of Piracy

Why in the news?

- Leak of *Jana Nayagan* movie before release raises concerns over piracy laws and stricter penalties under amended Cinematograph Act.

Legal Framework Governing Piracy in India

- **Copyright Law Provisions:** Copyright Act, 1957 penalises infringement with imprisonment up to 3 years and fines up to ₹2 lakh.
- **Repeat Offences:** Sections 63 and 63A impose enhanced penalties for repeated violations of copyright infringement.
- **Cinematograph Law Amendments:** Cinematograph Act, 1952 (amended 2023) imposes fines up to 5% of film's audited gross budget.

Nature of Piracy Offences

- **Unauthorised Distribution:** Illegal copying, sharing, or uploading of films without permission constitutes infringement.

- **Pre-release Leaks:** Considered more serious as they directly impact theatrical revenues and intellectual property valuation.
- **Digital Sharing Liability:** Even forwarding pirated links or hosting content can attract legal penalties.

Enforcement Challenges

- **Weak Implementation:** India is often labelled a "notorious market" due to limited prosecution and low conviction rates.
- **Technological Evasion:** Use of torrents, encrypted platforms, and domain shifting makes tracking offenders difficult.
- **Focus on Intermediaries:** Enforcement agencies often target distributors rather than individual users.

Judicial and Administrative Measures

- **Dynamic Injunctions:** Courts allow blocking of pirated websites through continuous updating of URLs.
- **John Doe Orders:** Pre-emptive legal orders issued against unknown infringers to prevent piracy.
- **Cyber Crime Action:** Law enforcement agencies track digital footprints and prosecute offenders.

Way Forward

- **Digital Rights Management:** Encryption techniques used by OTT platforms to prevent copying of content.
- **Watermarking Techniques:** Invisible and visible marks help trace source of leaks within distribution chain.
- **Restricted Access Model:** Limiting content access to theatres reduces risk of high-quality leaks.
- **Economic Losses:** Reduces revenue from theatrical releases and streaming rights.
- **Impact on Industry:** Discourages investment and affects livelihoods of stakeholders in film sector.
- **Legal Deterrence:** Stricter penalties aim to curb piracy but require effective enforcement.

6. Migration Governance in India

Why in the news?

- Large-scale evacuation from Gulf crisis highlights gaps in India's migration governance and need for comprehensive policy framework.

India's Migration Landscape

- **Scale of Overseas Migration:** Gulf Cooperation Council countries host nearly one crore Indians, forming a major labour destination.
- **Remittance Dependence:** Significant share of India's remittances originates from Gulf, supporting household welfare and economy.
- **Internal-External Linkages:** Migration system spans both domestic and international mobility, interconnected in nature.

Current Approach to Migration Governance

- **Crisis-Driven Response:** Focus remains on evacuation and repatriation during disruptions rather than continuous policy engagement.
- **Diplomatic Strength:** Effective coordination by government ensures safe return during emergencies.
- **Reactive Framework:** Policies become active only after crises, neglecting pre- and post-migration stages.

Structural Challenges in Migration System

- **Fragmented Institutional Framework:** Multiple ministries handle different stages without integrated coordination.

- **Lack of Worker-Centric Approach:** Policies do not fully reflect the lifecycle of migrant workers' journey.
- **Data Deficiency:** Absence of real-time, granular migration data limits anticipatory governance.

Emerging Vulnerabilities

- **Economic Pressures:** Rising living costs and sectoral slowdowns affect migrant stability without visible crises.
- **Precarious Working Conditions:** Informal arrangements expose workers to exploitation and insecurity.
- **Uneven State Capacity:** Variations among states in welfare systems and reintegration support.

Policy Gaps in Migration Lifecycle

- **Recruitment Stage Issues:** Weak regulation of intermediaries leads to exploitation and debt burdens.
- **Destination Support Deficit:** Limited welfare and legal assistance for workers abroad.
- **Reintegration Challenges:** Lack of structured support for returning migrants in local economies.

Way Forward

- **Lifecycle-Based Governance:** Address migration at all stages-departure, employment, and return.
- **Centre-State Coordination:** Enhance collaboration for consistent welfare delivery across regions.
- **Skill and Social Security Integration:** Link migration with skilling programmes and portable welfare benefits.
- **Proactive Diplomacy:** Strengthen bilateral agreements ensuring labour rights and protections abroad.

7. Promotion and Regulation of Online Gaming Rules, 2026

Why in the news?

- Promotion and Regulation of Online Gaming Rules, 2026 notified to operationalise PROG Act and regulate online gaming sector.

Legal Framework for Online Gaming in India

- **Parent Legislation:** Promotion and Regulation of Online Gaming Act, 2025 aims to regulate online money games and promote e-sports.
- **Rule-Making Authority:** Section 19 empowers Ministry of Electronics and Information Technology to frame operational rules.
- **Implementation Timeline:** Rules, 2026 come into force from 1st May 2026 providing regulatory clarity.

Objectives of the Rules

- **User Protection:** Safeguard citizens, especially children, from addiction, financial loss, and misleading gaming practices.
- **Regulatory Certainty:** Establish transparent classification of online games with clear timelines.
- **Financial Safeguards:** Prevent banks and payment systems from facilitating prohibited gaming transactions.
- **Institutional Coordination:** Enable cooperation among regulators, law enforcement, and state governments.

Institutional Mechanism

- **Online Gaming Authority of India:** Central regulator under Ministry of Electronics and Information Technology for oversight and enforcement.
- **Multi-Sectoral Composition:** Includes representatives from finance, home, law, and sports ministries.
- **Core Functions:** Classification of games, grievance redressal, issuing directions, and enforcement coordination.

Classification and Determination of Games

- **Determination Process:** Games classified as money games or permissible games through structured evaluation.

- **Objective Criteria:** Includes stake involvement, monetary rewards, and revenue models.
- **Time-Bound Decision:** Determination to be completed within 90 days ensuring efficiency.

Registration Framework

- **Mandatory Registration:** Required for notified games and all e-sports categories.
- **Digital Certification:** Valid registration granted for up to 10 years with unique identification.
- **Transparency Requirements:** Service providers must disclose registration details and comply with regulatory norms.

Grievance Redressal Mechanism

- **Two-Tier System:** First at service provider level, second at Online Gaming Authority.
- **Appellate Authority:** Further appeal lies with Secretary, Ministry of Electronics and Information Technology.
- **Time-Bound Resolution:** Appeals to be resolved within defined timelines ensuring accountability.

Significance of the Framework

- **Balancing Innovation and Regulation:** Promotes gaming industry while controlling harmful practices.
- **Boost to E-Sports:** Provides legal recognition and structured growth opportunities.
- **Consumer-Centric Approach:** Ensures safety, transparency, and accountability in digital gaming ecosystem.

C. SOCIAL JUSTICE

I. Welfare Schemes for Vulnerable Sections

1. Transgender Persons (Protection of Rights) Amendment Act, 2026

Why in the news?

- The enactment of the Transgender Persons (Protection of Rights) Amendment Act, 2026 has triggered debate due to its shift from self-identification to medical certification.

Evolution of Transgender Rights in India

- **Judicial Expansion of Rights**: Post National Legal Services Authority v. Union of India, courts upheld self-identification as a fundamental right under Articles 14, 19, and 21, reinforcing dignity and autonomy of transgender persons.
- **Recognition of Identity and Expression**: Judiciary linked gender identity with freedom of expression and personal liberty, rejecting biological tests and prioritising psychological self-identification.
- **Progressive Judicial Interventions**: Cases like Navtej Singh Johar v. Union of India expanded LGBTQ+ rights, affirming identity as intrinsic and constitutionally protected.
- **High Court Safeguards**: Various High Courts ensured rights in education, employment, marriage, and elections, preventing institutional discrimination and enabling substantive equality.

Core Conflict: Self-Identification vs Medical Certification

- **Principle of Self-Identification**: Courts consistently held that gender determination lies solely with the individual, making it central to dignity, privacy, and autonomy.
- **Shift to Medical Certification**: The Transgender Persons (Protection of Rights) Amendment Act, 2026 mandates certification by medical boards, undermining self-identification.
- **Impact on Fundamental Rights**: Conditioning identity on medical approval risks violating Articles 14, 19, and 21 by reintroducing state control over personal identity.

- **Exclusionary Definitions**: Removal of categories like trans-man and trans-woman narrows legal recognition and ignores lived realities of gender diversity.

Legislative Trajectory and Challenges

- **Initial Legislative Efforts**: The Transgender Persons (Protection of Rights) Act, 2019 emerged after multiple drafts, reflecting resistance to full recognition of self-identification.
- **Persisting Bureaucratic Hurdles**: Requirements such as proof of surgery and administrative certification created barriers contrary to judicial principles.
- **Omissive Discrimination**: In Jane Kaushik v. Union of India, the Supreme Court criticised state inaction, terming it as discrimination due to failure in implementation.
- **Lack of Consultation**: The 2026 Amendment was enacted without engaging advisory bodies or the transgender community, raising concerns of democratic deficit.

Implications of the 2026 Amendment Act

- **Departure from Constitutional Baseline**: Courts have warned that the amendment dilutes the autonomy recognised under NALSA and subsequent rulings.
- **State-Mediated Identity**: Legal recognition becomes contingent on administrative approval, undermining the concept of inherent personhood.
- **Risk of Increased Marginalisation**: Medicalisation may exclude vulnerable groups lacking access to healthcare, deepening social and economic inequalities.
- **Judicial Concerns**: High Courts have emphasised that statutory changes must align with constitutional morality and not regress established rights.

Way Forward

- **Reaffirm Self-Identification Principle**: Align legislation with judicial precedents to uphold autonomy and dignity.
- **Ensure Participatory Law-Making**: Include transgender communities in policy formulation to reflect lived realities.
- **Strengthen Implementation Mechanisms**: Address administrative gaps to prevent "omissive discrimination".
- **Harmonise Law with Constitutional Values**: Ensure future amendments reinforce equality, non-discrimination, and substantive justice.

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

1. NCERT as Deemed University

Why in the news?

About Deemed-to-be-University Status

- **Definition**: Granted by the government on advice of the University Grants Commission (UGC), allowing autonomy in academic functions.
- **Powers Granted**: Institutions can design courses, conduct exams, and award degrees independently.

Key Provisions of the Notification

- **Institutional Coverage**: Status extended to NCERT and its six regional institutes to function under unified academic autonomy.
- **Regulatory Compliance**: All programmes must adhere to UGC norms and standards of relevant statutory bodies.

- **Non-Commercial Mandate**: Prohibits profit-oriented and commercial activities to preserve public education ethos.
- **Expansion Guidelines**: Opening of off-campus or offshore centres subject to UGC regulations.

Academic and Research Implications

- **Degree Granting Authority**: NCERT can now offer undergraduate, postgraduate, and doctoral programmes.
- **Research Promotion**: Mandated to initiate doctoral and innovative research programmes in emerging and core education domains.
- **Interdisciplinary Scope**: Encouraged to expand beyond niche areas in line with NEP 2020 vision.
- **Accreditation Requirements**: Programmes must be accredited by the National Board of Accreditation (NBA).
- **Institutional Assessment**: Mandatory accreditation by the National Assessment and Accreditation Council (NAAC) to ensure quality benchmarks. **Standardization**: Ensures uniform academic quality and credibility.

Significance for Education Sector

- **Teacher Education Reform**: Strengthens capacity for high-quality teacher training and curriculum development.
- **Policy Implementation**: Facilitates effective execution of NEP 2020 recommendations.
- **Institutional Autonomy**: Promotes innovation, flexibility, and global competitiveness in education.

Challenges and Concerns

- **Capacity Constraints**: Need for infrastructure and faculty expansion to meet higher academic responsibilities.
- **Regulatory Oversight**: Balancing autonomy with accountability to prevent dilution of standards.
- **Implementation Gaps**: Ensuring timely rollout of programmes and maintaining quality.

Conclusion

Strengthening governance, ensuring robust accreditation, and fostering research excellence will enable NCERT to emerge as a premier academic institution.

2. One Health Approach

Why in the news?

- Growing global focus on One Health approach after COVID-19 and new pandemic treaty highlights need for integrated human-animal-environment health systems.

Concept of One Health

- **Definition**: Integrated approach balancing health of humans, animals, and environment.
- **Interdependence**: Health of each domain is intrinsically linked to others.
- **Preventive Orientation**: Focuses on early detection and risk mitigation.
- **Multidisciplinary Nature**: Involves medicine, veterinary science, ecology, and public policy.
- **Sustainability Link**: Promotes long-term ecological and health balance.

Evolution of One Health

- **Early Recognition**: Emerged during outbreaks like Severe Acute Respiratory Syndrome and avian influenza.
- **Manhattan Principles**: Highlighted ecosystem-health linkages and disease emergence risks.
- **Global Acceptance**: Widely acknowledged after COVID-19 pandemic.
- **Scientific Backing**: Supported by research on zoonotic disease patterns.
- **Policy Integration**: Incorporated into global health governance frameworks.

Drivers for One Health Approach

- **Zoonotic Spillovers**: Majority of new diseases originate in animals due to habitat loss.
- **Climate Change**: Alters vector ecology and disease transmission cycles.
- **Urban Expansion**: Encroachment into wildlife habitats increases exposure risks.
- **Globalisation**: Rapid travel accelerates cross-border disease spread.
- **Agricultural Practices**: Intensive farming heightens infection risks.
- **Biodiversity Loss**: Weakens natural disease regulation mechanisms.

Institutional Frameworks

- **Quadripartite Collaboration**: World Health Organization, Food and Agriculture Organization, United Nations Environment Programme, World Organisation for Animal Health coordinate efforts.
- **Joint Action Plan**: Provides strategic roadmap for global implementation.
- **Pandemic Treaty**: Ensures pathogen sharing and equitable healthcare access.
- **International Platforms**: Summits and forums promote cooperation.
- **Regulatory Mechanisms**: Encourage standardised protocols and compliance.

India's Initiatives

- **National One Health Mission**: Integrates multiple sectors for surveillance and preparedness.
- **Integrated Disease Surveillance Programme**: Tracks outbreaks and supports early warning.
- **State-Level Innovations**: Odisha climate budgeting, Kerala carbon-neutral initiatives, Tamil Nadu climate resilience measures.
- **Institutional Strengthening**: Enhancing veterinary and public health infrastructure.
- **Research and Development**: Promoting interdisciplinary scientific collaboration.

Challenges in Implementation

- **Institutional Fragmentation**: Lack of coordination among departments and agencies.
- **Financial Constraints**: Insufficient funding for integrated initiatives.
- **Data Silos**: Poor sharing of real-time information across sectors.
- **Human Resource Gaps**: Shortage of trained multidisciplinary professionals.
- **Policy Incoherence**: Weak integration of policies across domains.
- **Technological Limitations**: Inadequate surveillance and diagnostic systems.

Way Forward

- **Integrated Governance**: Establish unified frameworks for coordination.
- **Technology Adoption**: Use digital tools, artificial intelligence, and big data for monitoring.
- **Capacity Building**: Train workforce across disciplines.
- **Community Engagement**: Involve local populations in awareness and prevention.
- **International Cooperation**: Strengthen global partnerships and knowledge sharing.
- **Continuous Monitoring**: Ensure evaluation and adaptive policy responses.

3. Climate Change Reshaping Disease Patterns

Why in the news?

- New report highlights climate change as major public health threat in India, affecting disease patterns, healthcare systems, and vulnerable populations.

Climate Change and Disease Patterns

- **Vector-Borne Diseases**: Rising temperatures expand spread of dengue and malaria into new regions.
- **Water-Borne Diseases**: Floods trigger outbreaks like cholera and hepatitis.
- **Heat-Related Illnesses**: Heatwaves cause dehydration, heatstroke, and cardiovascular stress.
- **Non-Communicable Diseases**: Air pollution increases respiratory and cardiac conditions.

Impact on Healthcare Systems

- **Infrastructure Damage**: Floods and cyclones disrupt hospitals and health services.
- **Supply Chain Disruptions**: Interruptions in medicines and vaccines delivery.
- **Increased Burden**: Rising disease cases strain already limited healthcare capacity.
- **Access Inequality**: Remote areas face severe service disruptions.

Vulnerable Populations

- **Rural and Informal Workers**: Greater exposure to climate risks and limited coping capacity.
- **Women's Health Risks**: Heat linked to preterm births and pregnancy complications.
- **Children's Vulnerability**: Higher susceptibility to heat stress and respiratory diseases.
- **Economic Weakness**: Loss of livelihood increases health vulnerability.

Economic and Social Impacts

- **Labour Productivity Loss**: Heat exposure reduces working hours and efficiency.
- **Rising Healthcare Costs**: Increased expenditure burdens households.
- **Poverty Cycle**: Health shocks deepen socio-economic inequalities.
- **Migration Pressures**: Climate stress may trigger displacement.

Government Initiatives

- **National Action Plan on Climate Change and Human Health**: Integrates health concerns into climate policy.
- **State Action Plans**: Localised adaptation strategies.
- **Heat Action Plans**: Early warning systems and preparedness measures.
- **Policy Shift**: Increasing focus on climate-health linkages.

Challenges in Addressing Climate-Health Link

- **Data Gaps**: Lack of localised and disaggregated health-climate data.
- **Funding Constraints**: Limited resources for adaptation measures.
- **Low Awareness**: Inadequate public understanding of risks.
- **Institutional Fragmentation**: Poor coordination across sectors.

Way Forward

- **Strengthening Data Systems**: Develop real-time, localised health-climate databases.
- **Climate-Resilient Infrastructure**: Build robust healthcare systems.
- **Intersectoral Coordination**: Integrate health into climate policies.
- **Community Awareness**: Promote behavioural adaptation strategies.
- **Increased Investment**: Focus on adaptation and resilience building.

4. Viksit Bharat Shiksha Adhisthan Bill

Why in the news?

- Viksit Bharat Shiksha Adhisthan Bill under review raises concerns over centralisation, federalism, and autonomy in higher education governance.

Key Provisions of the Bill

- **Centralised Councils**: Establishes regulatory, accreditation, and standards councils under Union control.
- **Expanded Powers**: Councils empowered for inspection, regulation, and decision-making.
- **Funding Authority**: Central government assumes role in allocation of funds to higher education institutions.
- **Coverage Scope**: Applies to Central, State, and private universities.

Constitutional Concerns

- **Legislative Overreach**: Entry 66 limits Union role to coordination and standards, not full regulation.
- **Federalism Issue**: Education is in Concurrent List, requiring shared responsibility.
- **State Role Dilution**: Reduced participation of State governments in decision-making.
- **Autonomy Concerns**: Curtails independence of institutions like Indian Institutes of Technology and Indian Institutes of Management.

Impact on Institutional Governance

- **Bureaucratic Control**: Increased role of bureaucracy in academic decision-making.
- **Reduced Participation**: Limited involvement of universities, faculty, and students.
- **Weakening of University Grants Commission**: Dilution of consultative mechanisms and inspection norms.
- **Top-Down Regulation**: Prescriptive governance replacing deliberative processes.

Equity and Social Justice Issues

- **Regional Imbalance**: Insufficient focus on inter-State and inter-regional equity.
- **Public Funding Concerns**: Shift towards reduced government responsibility in funding education.
- **Access Inequality**: Risk of exclusion for marginalised communities.

Way Forward

- **Balanced Federal Structure**: Equal weightage to Centre and States in governance.
- **Higher Education Grants Council**: Separate body for transparent fund allocation.
- **Participatory Governance**: Inclusion of academic bodies and stakeholders.
- **Outcome-Based Approach**: Focus on innovation, social justice, and national development.
- **Regional Councils**: Address ecological and socio-economic diversity.

5. Mental Healthcare in India

Why in the news?

- Global Mind Health 2025 report shows India's youth mental health declining, ranking 60th globally, raising socio-economic concerns.

Mental Health Status in India

- **Youth Mental Health Ranking:** Young adults (18-34) rank 60th among 84 countries with low Mind Health Quotient scores.

- **Elderly Comparison:** Older population (55+) performs better, ranking 49th with relatively stable mental functioning.
- **Generational Divide:** Indicates a structural decline in mental well-being among younger cohorts.

Understanding Mind Health Quotient (MHQ)

- **Definition of MHQ:** Composite index measuring emotional, cognitive, social, and physical functioning.
- **Holistic Assessment:** Reflects ability to manage stress, relationships, and productivity in daily life.
- **Indicator of Functionality:** Higher MHQ correlates with better life outcomes and societal stability.

Key Drivers of Declining Youth Mental Health

- **Digital Exposure:** Early smartphone usage affects attention, emotional regulation, and behavioural development.
- **Lifestyle Changes:** Increased consumption of ultra-processed food impacts neurological health.
- **Weakening Social Bonds:** Decline in family closeness and community support structures.

Protective and Risk Factors

- **Family and Cultural Support:** India retains relatively strong family bonds compared to many countries.
- **Declining Social Cohesion:** Younger generation shows reduced emotional closeness and support systems.
- **Spiritual Disconnect:** Reduced sense of meaning and connectedness affects mental resilience.

Socio-Economic Implications

- **Impact on Productivity:** Lower MHQ linked to reduced workforce efficiency and economic output.
- **Rising Social Risks:** Decline in social self may correlate with increased crime and instability.
- **Employment Challenges:** Poor mental health affects job retention and interpersonal relationships.

Policy Challenges

- **Lack of Awareness:** Mental health stigma limits early diagnosis and intervention.
- **Inadequate Infrastructure:** Shortage of mental health professionals and services.
- **Fragmented Approach:** Absence of integrated policy linking health, education, and digital regulation.

Way Forward

- **Strengthening Mental Health Systems:** Expand access to counselling, therapy, and community care.
- **Regulating Digital Exposure:** Promote responsible smartphone use among children and adolescents.
- **Promoting Healthy Lifestyles:** Encourage physical activity, balanced diet, and time in nature.
- **Reinforcing Social Structures:** Strengthen family and community-based support mechanisms.

6. Deaths Due to Toxic Workplace

Why in the news?

- Global report highlights over 8.4 lakh deaths annually due to toxic workplaces, stressing urgent need for labour reforms.

Workplace Psychosocial Risks

- **Definition of Risks:** Psychosocial risks include job stress, insecurity, long hours, and workplace harassment affecting mental and physical health.
- **Global Scale:** International Labour Organization estimates over 8.4 lakh deaths annually linked to such risks.
- **Health Outcomes:** Major impacts include cardiovascular diseases, mental disorders, and increased suicide risk.

Key Risk Factors Identified

- **Long Working Hours:** Around 35% of workers globally exceed 48 hours per week, increasing stress and fatigue.
- **Job Insecurity:** Uncertain employment conditions contribute to anxiety and reduced well-being.
- **Workplace Harassment:** About 23% workers face violence or harassment, especially psychological abuse.

Economic and Social Impact

- **Loss of Productivity:** Psychosocial risks reduce efficiency and organisational performance.
- **Economic Cost:** Estimated loss of around 1.37% of global Gross Domestic Product annually.
- **DALY Burden:** Nearly 45 million disability-adjusted life years lost due to work-related stress factors.

Implications for Workers and Society

- **Mental Health Crisis:** Increasing prevalence of stress-related disorders among workforce.
- **Work-Life Imbalance:** Excessive work demands reduce quality of life and social well-being.
- **Rising Inequality:** Vulnerable workers face greater exposure to unsafe working conditions.

Policy Challenges

- **Regulatory Gaps:** Inadequate labour laws addressing mental health and workplace conditions.
- **Weak Enforcement:** Poor implementation of occupational safety standards.
- **Lack of Awareness:** Limited recognition of psychosocial risks as occupational hazards.

Way Forward

- **Workplace Reforms:** Limit working hours, ensure job security, and promote safe work environments.
- **Strengthening Labour Institutions:** Encourage collective bargaining and worker representation.
- **Mental Health Integration:** Incorporate mental health support into occupational safety policies.
- **Awareness and Training:** Sensitise employers and employees about workplace well-being.

III. Issues relating to Poverty and Hunger.

1. Rise in middle class vulnerability

Why in the news?

- World Bank highlights rising vulnerability of India's middle class despite declining poverty and strong economic growth trends.

Changing Nature of Poverty and Welfare

- **Limitations of Poverty Line Approach:** Traditional metrics capture subsistence threshold crossing but ignore quality of life and future economic mobility.
- **Well-being as a Spectrum:** New approach measures distance from a reasonable standard of living, focusing on depth of deprivation.
- **Shift in Policy Perspective:** Moves from counting poor to understanding vulnerability and sustainability of economic progress.

Rise of Vulnerable Middle Class

- **Post-Poverty Vulnerability:** Households above poverty line face income instability, limited savings, and risk of slipping back into poverty.
- **Lack of Economic Mobility:** Growth has not ensured upward movement into secure middle-class status.

- **Consumption without Security:** Rising dependence on credit indicates fragile financial conditions rather than prosperity.

Structural Issues in Indian Economy

- **Jobless Growth Pattern:** Economic expansion driven by capital-intensive sectors limits employment generation.
- **Weak Labour Absorption:** Manufacturing sector failed to absorb workforce, even witnessing job losses.
- **Informalisation of Workforce:** Over 90% workers remain informal with low wages and lack of social security.

Labour Market Concerns

- **Wage Stagnation:** Real wages remain stagnant despite productivity gains, weakening income growth linkage.
- **High Unemployment Rates:** Youth and educated unemployment reflect mismatch between skills and opportunities.
- **Reverse Structural Transformation:** Movement of labour back to agriculture indicates limited industrial expansion.

Inequality and Concentration of Wealth

- **Rising Income Inequality:** Top 1% captures significant share of national income, widening economic disparities.
- **Wealth Concentration:** A small elite controls large share of national wealth, limiting inclusive growth.
- **Regional and Sectoral Imbalances:** Growth benefits concentrated in select sectors and urban regions.

Human Development Constraints

- **Low Financial Savings:** Declining household savings reduce resilience against economic shocks.
- **Nutrition and Health Issues:** High levels of child stunting and wasting constrain future productivity.
- **Limited Access to Quality Services:** Education and healthcare gaps hinder long-term upward mobility.

Way Forward

- **Focus on Quality of Growth:** Emphasis on employment-intensive sectors to enhance inclusive development.
- **Strengthening Wage-Productivity Link:** Ensure fair distribution of gains from economic growth.
- **Expanding Social Security:** Broaden coverage to informal workers to reduce vulnerability.
- **Improving Human Capital:** Investments in health, education, and skills for sustained mobility.

2. Food Wastage in India

Why in the news?

- International Day of Zero Waste 2024 highlights global food waste crisis amid persistent hunger and environmental concerns.

Global Food Waste Crisis

- **Scale of Food Waste:** United Nations Environment Programme estimates 1.05 billion tonnes wasted globally across households, retail, and food services.
- **Hunger Paradox:** Around 783 million people face hunger while over 3.1 billion cannot afford a healthy diet.
- **Systemic Inefficiencies:** Supply chain gaps, policy failures, and consumer behaviour contribute to large-scale food wastage.

India's Food Waste Scenario

- **High Absolute Waste:** India ranks second globally with 78-80 million tonnes of food wasted annually.

- **Per Capita Perspective:** Lower household waste compared to developed countries but significant due to population size.
- **Hunger Challenge:** India ranks low in Global Hunger Index with millions undernourished.

Structural Causes of Food Loss

- **Post-Harvest Inefficiencies:** Lack of storage, cold chain, and scientific handling leads to major losses.
- **Supply Chain Gaps:** Poor logistics and absence of grading and packaging standards worsen wastage.
- **Institutional Constraints:** Ineffective policies and outdated regulations hinder modern storage solutions.

Case Study: Punjab

- **Production-Wastage Paradox:** High agricultural output coexists with significant post-harvest losses.
- **Storage Issues:** Foodgrain spoilage in Food Corporation of India facilities highlights infrastructure gaps.
- **Environmental Stress:** Groundwater depletion aggravated by wastage of water-intensive crops like rice.

Environmental Implications

- **Greenhouse Gas Emissions:** Food waste contributes 8-10% of global emissions, mainly methane from landfills.
- **Resource Loss:** Wastage leads to loss of water, land, energy, and labour inputs.
- **Climate Linkages:** Food waste reduction is essential for achieving climate targets.

Way Forward

- **Cold Chain Expansion:** Treat storage and logistics as critical food security infrastructure.
- **Legal Framework for Redistribution:** Mandate donation of surplus food with incentives for businesses.
- **Farmer Support Systems:** Promote mechanisation, storage technologies, and farmer-producer organisations.
- **Data and Monitoring:** Establish national database and mandatory reporting of food waste.
- **Behavioural Change:** Revive cultural ethos of respecting food as a civic responsibility.

D. INTERNATIONAL RELATIONS

I. India and its Neighborhood- Relations

1. India-Bangladesh Relations

Why in the news?

- Bangladesh signals reset in ties with India, emphasizing people-to-people relations, energy cooperation, and resolving bilateral tensions post political transition.

Changing Nature of India-Bangladesh Relations

- **People-to-People Focus**: Emphasis on societal, cultural, and economic connections rather than leader-centric ties.
- **Post-Political Transition**: Reset after regime change in Bangladesh aims to correct past imbalances.
- **Frequent Engagements**: Increased interactions between officials and political actors to avoid misunderstandings.

Areas of Cooperation

- **Energy Collaboration**: India-Bangladesh Friendship Pipeline and diesel supply to address Bangladesh's energy needs.
- **Trade and Connectivity**: Discussions on easing restrictions on use of Indian ports and airports for exports.
- **Water Sharing Issues**: Renewal of Ganga water treaty remains a key agenda item.

Key Challenges in Bilateral Relations

- **Border Management Issues**: Concerns over firing incidents involving civilians along the border.
- **Security Concerns**: India highlights smuggling and illegal activities, while Bangladesh stresses humane enforcement.
- **Trust Deficit**: Past political alignments and recent unrest have strained mutual confidence.

Geopolitical Context

- **Regional Instability**: Ongoing West Asian conflicts impacting energy security and strategic calculations.
- **Strategic Importance**: Bangladesh remains crucial for India's Act East Policy and regional connectivity initiatives.

Way Forward

- **Institutional Engagement**: Strengthen diplomatic channels and regular high-level dialogues.
- **Balanced Cooperation**: Address trade, security, and humanitarian concerns simultaneously.
- **Confidence Building Measures**: Promote transparency, border management reforms, and cultural exchanges.

2. India - Sri Lanka Relation

Why in the news?

- India extends Overseas Citizen of India eligibility to sixth-generation Indian diaspora in Sri Lanka during Vice-President's official visit.

Overseas Citizen of India (OCI) Framework

- **Meaning of OCI:** Overseas Citizen of India provides lifelong visa, residency, and economic rights to persons of Indian origin abroad.
- **Eligibility Expansion:** Extension from fourth to sixth generation widens diaspora inclusion and strengthens cultural ties.
- **Documentation Flexibility:** Acceptance of Sri Lankan-issued documents improves accessibility for eligible applicants.

Significance of Move for India-Sri Lanka Relations

- **Diaspora Engagement:** Strengthens emotional and socio-cultural bonds with Indian-origin communities in Sri Lanka.
- **Soft Power Diplomacy:** Enhances India's influence through inclusive diaspora policy.
- **Bilateral Trust Building:** Reinforces goodwill amid sensitive issues like fishermen disputes.

India-Sri Lanka Bilateral Cooperation

- **Economic Assistance:** India provided financial support during Sri Lanka's 2022 economic crisis.
- **Development Projects:** Implementation of housing and infrastructure initiatives reflects long-term partnership.
- **Disaster Support Role:** Aid such as Cyclone relief highlights India as a regional first responder.

Key Bilateral Issues

- **Fishermen Dispute:** Regular tensions due to fishing rights and maritime boundary concerns in Palk Strait.
- **Livelihood Concerns:** Need for humanitarian approach balancing security and economic needs of fishing communities.
- **Strategic Sensitivities:** Sri Lanka's geopolitical position makes bilateral ties crucial for regional stability.

Way Forward

- **Institutional Mechanisms:** Strengthen frameworks to address fishermen disputes through dialogue and agreements.
- **Enhanced Connectivity:** Promote trade, investment, and people-to-people exchanges.
- **Sustained Development Support:** Continue infrastructure and welfare projects to deepen bilateral ties.

II. India & World

1. West Asia war and Securing India's Energy

Why in the news?

- Geopolitical instability in West Asia exposes India's structural energy insecurity due to heavy dependence on imported fossil fuels.

Global Energy Interdependence

- **Geopolitical Risks**: Disruptions in critical chokepoints like the Strait of Hormuz affect global oil supply chains and price stability.
- **Unequal Impact**: Developing countries face disproportionate economic stress due to higher import dependence.
- **Strategic Competition**: Energy resources remain central to global power dynamics and foreign policy.

Renewable Energy Transition

- **Shift to Clean Energy**: Countries are accelerating renewable energy adoption to reduce fossil fuel dependence and enhance energy security.
- **Leadership Gap**: Nations like China dominate renewable capacity expansion, while others lag in scale and speed.
- **Climate Commitments**: Transition aligns with international agreements such as the Paris Agreement.

Critical Minerals and New Dependencies

- **Supply Chain Concentration**: Processing of key minerals is dominated by a few countries, creating new geopolitical dependencies.
- **Resource Nationalism**: Countries are prioritising domestic control over strategic minerals.
- **Global Competition**: Access to lithium, cobalt, and rare earth elements is emerging as a new arena of strategic rivalry.

India's Position in Global Energy Politics

- **Import Vulnerability**: Heavy reliance on West Asian oil exposes India to global market fluctuations.
- **Balancing Act**: India must align developmental priorities with international climate obligations.
- **Strategic Partnerships**: Engagement with multiple regions ensures diversified energy sources and diplomatic leverage.

Global Governance and Institutional Role

- **Multilateral Cooperation**: Institutions like the International Energy Agency and climate frameworks facilitate coordination and policy alignment.
- **Technology Transfer**: Developed countries are expected to support developing nations through finance and innovation sharing.
- **Policy Harmonisation**: Global standards and cooperation are essential for stable energy transition.

India's Strategic Policy Response

- **Scaling Renewables**: Increasing renewable capacity strengthens energy independence and global climate leadership.
- **Manufacturing Hub Vision**: Positioning India as a clean energy manufacturing centre enhances global competitiveness.
- **Diversification Strategy**: Expanding energy mix reduces reliance on any single region or resource.

Way Forward

- **Strengthening Global Partnerships**: Collaborate on energy security, mineral supply chains, and technology development.
- **Promoting Fair Transition**: Advocate for equity in climate finance and responsibility-sharing.
- **Building Resilient Systems**: Develop diversified and sustainable energy infrastructure aligned with global trends.

2. India-Turkiye

Why in the news?

- India and Turkiye held the 12th round of Foreign Office Consultations after a gap of four years.

Areas of Cooperation

- **Economic Engagement**: Focus on trade, investments, and business partnerships.
- **Technology and Innovation**: Potential collaboration in emerging sectors.
- **Energy Cooperation**: Scope for mutual benefit in energy security.
- **People-to-People Ties**: Cultural and educational exchanges to build trust.

Strategic Significance

- **Pragmatic Diplomacy**: Reflects India's approach of engaging despite differences.
- **Balancing Interests**: Managing ties with countries having divergent positions.
- **Regional Stability**: Dialogue helps reduce tensions and fosters cooperation.

Challenges in Relations

- **Trust Deficit**: Past positions continue to influence bilateral perceptions.
- **Security Concerns**: Cross-border terrorism remains a key issue.
- **External Alignments**: Türkiye's ties with Pakistan affect India's strategic calculus.

Way Forward

- **Sustained Dialogue**: Regular consultations to address concerns and build confidence.
- **Issue-Based Cooperation**: Focus on mutually beneficial sectors while managing differences.
- **Diplomatic Engagement**: Promote balanced and constructive bilateral relations.

3. India and Global World Order

Why in the news?

- Strait of Hormuz tensions amid Iran conflict highlight India's energy vulnerability and need for proactive foreign policy.

Geopolitical Context of Iran Conflict

- **Nature of the Conflict:** War under "Operation Epic Fury" shows limits of military solutions in resolving complex geopolitical disputes.
- **Strait of Hormuz Crisis:** Blockade disrupted global energy flows, turning a strategic chokepoint into a major instability zone.
- **Shifting War Objectives:** Changing goals reflect lack of clear strategy and unintended escalation of tensions.

Global Power Dynamics and Outcomes

- **Strategic Gains for Major Powers:** Russia benefited from energy exports while China advanced de-dollarisation through alternative trade mechanisms.
- **Weakening of Global Order:** United States actions raised concerns over reliability as a stabilising force in international system.
- **Impact on Alliances:** NATO divisions and Gulf insecurity exposed fragility of existing security frameworks.

Implications for India

- **Energy Security Risks:** Heavy dependence on Strait of Hormuz for crude imports exposes India to supply disruptions.
- **Economic Pressures:** Rising fuel costs and shortages impact inflation, fiscal stability, and household consumption.
- **Tactical Adjustments:** Diversification of imports from Russia and United States reflects short-term resilience.

Diplomatic Challenges

- **Strategic Restraint:** India maintained neutrality due to competing interests with United States, Gulf nations, and Iran.
- **Credibility Concerns:** Silence on major global issues risks undermining India's claim as voice of Global South.
- **Balancing Interests and Values:** Need to align national interest with principled foreign policy stance.

Structural Issues in India's Approach

- **Reactive Policy Orientation:** Focus on crisis management rather than long-term strategic planning.
- **Limited Global Influence:** Dependence on major powers constrains independent diplomatic action.
- **Energy Dependence:** Insufficient diversification and domestic capacity increase vulnerability.

Way Forward for India

- **Energy Diversification:** Expand renewable energy, strategic reserves, and alternative supply corridors.
- **Proactive Diplomacy:** Engage all stakeholders to mediate conflicts and stabilise regional security.
- **Strengthening Strategic Autonomy:** Build independent capabilities in defence, economy, and technology.
- **Leadership in Global South:** Advocate rules-based order and equitable global governance reforms.

4. India-South Korea Relation

Why in the news?

- India and South Korea resume CEPA upgradation talks, expand cooperation in technology, trade, and strategic sectors.

India-South Korea Bilateral Relations

- **Special Strategic Partnership:** Both nations aim to transform ties into a future-oriented partnership across sectors.
- **Economic Engagement:** Bilateral trade has grown significantly since CEPA, reflecting deepening economic integration.
- **Shared Global Vision:** Cooperation emphasises peace, stability, and reforms in global governance institutions.

Comprehensive Economic Partnership Agreement (CEPA)

- **Background of CEPA:** Trade agreement in force since 2010 to promote goods, services, and investment flows.
- **Need for Upgradation:** Address trade imbalance, improve market access, and adapt to evolving global trade dynamics.
- **Trade Targets:** Aim to increase bilateral trade to $50 billion by 2030 through enhanced cooperation.

Key Areas of Cooperation

- **Digital and Technology Collaboration:** Focus on artificial intelligence, semiconductors, and information technology under Digital Bridge initiative.
- **Industrial and SME Cooperation:** Establishment of industrial townships and support for small and medium enterprises.
- **Maritime Sector Partnership:** Joint efforts in shipbuilding, shipping, and maritime logistics leveraging complementary strengths.

Cultural and People-to-People Ties

- **Cultural Exchange:** Promotion of K-pop, cinema, and creative industries collaboration.
- **Institutional Initiatives:** Establishment of cultural centres and organisation of friendship festivals.
- **Soft Power Engagement:** Strengthens mutual understanding and societal connections.

5. India - Egypt Relation

Why in the news?

- 11th India-Egypt Joint Defence Committee meeting in Cairo advances strategic partnership, enhancing defence, maritime security, and industrial cooperation.

Evolution of India-Egypt Relations

- **Ancient and Historical Linkages**: Trade between Indus Valley and Nile civilizations via Red Sea routes; cultural exchanges through Greco-Roman and Islamic networks.
- **Post-Independence Solidarity**: Leadership of Jawaharlal Nehru and Gamal Abdel Nasser fostered anti-colonial unity and Non-Aligned Movement cooperation.
- **Cold War to Contemporary Phase**: Temporary slowdown due to geopolitical shifts; revival since 1990s through economic reforms and renewed diplomacy.

Present Status of Bilateral Relations

- **Political and Strategic Engagement**: Elevated to Strategic Partnership in 2023; regular high-level visits and cooperation in multilateral platforms.
- **Economic Cooperation**: Bilateral trade around $6-7 billion; key sectors include petroleum, fertilizers, textiles, and Indian investments in pharmaceuticals and information technology.
- **Geostrategic Significance**: Egypt's control of Suez Canal crucial for India's trade and energy flows; convergence in Indian Ocean-Mediterranean connectivity.
- **Defence Cooperation Framework**: Institutionalised through Joint Defence Committee focusing on training, technology, and maritime collaboration.

Key Outcomes of 11th Joint Defence Committee Meeting

- **Forward-Looking Defence Roadmap**: Agreement on 2026-27 roadmap to expand military engagements, joint exercises, and maritime cooperation.

- **Defence Industry Collaboration**: Emphasis on co-development, co-production, and technology transfer aligning with Atmanirbhar Bharat and export promotion.
- **Maritime Security Initiatives**: First Navy-to-Navy Staff Talks; strengthening role of Information Fusion Centre-Indian Ocean Region in maritime domain awareness.
- **Air Force Cooperation**: Enhanced scope for joint exercises, training exchanges, and air-to-air operational coordination.

Challenges in Bilateral Engagement

- **Economic Constraints**: Trade imbalance and underutilised potential limit deeper economic integration.
- **Institutional Barriers**: Bureaucratic hurdles and limited private sector participation hinder collaboration.
- **Geopolitical Competition**: Presence of China and other powers in Africa and West Asia challenges India's strategic space.
- **Regional Instability**: Volatility in West Asia-North Africa affects long-term cooperation prospects.

Way Forward

- **Economic and Connectivity Expansion**: Explore Comprehensive Economic Partnership Agreement or Free Trade Agreement and leverage Egypt as gateway to Africa and Europe.
- **Defence and Security Cooperation**: Scale up co-production, defence exports, and maritime coordination linking Suez Canal with Indian Ocean Region.
- **Energy and Technology Collaboration**: Focus on green hydrogen, renewable energy, and digital infrastructure partnerships.
- **Multilateral Synergy**: Joint leadership in Global South initiatives, climate negotiations, and counter-terrorism frameworks.

III. Important International Institutions, agencies and for a

1. US and NATO

Why in the news?

- Donald Trump have raised concerns about a possible U.S. exit from the North Atlantic Treaty Organization (NATO).

About NATO

- **Formation and Objective**: Established in 1949 for collective defence against Soviet threats during the Cold War.
- **Membership Expansion**: Expanded from 12 to 32 members, including Eastern European countries post-Cold War.
- **Operational Mechanism**: Functions through integrated military command under Supreme Headquarters Allied Powers Europe (SHAPE).
- **Key Principle**: Collective defence clause under Article 5 ensures mutual protection among members.

Reasons for U.S. Discontent with NATO

- **Burden Sharing Issues**: U.S. criticises allies for low defence spending and overdependence on American security guarantees.
- **Iran Conflict Trigger**: NATO members' refusal to support U.S. operations against Iran deepened tensions.
- **Divergent Strategic Interests**: Differences over Ukraine, Iran, and global interventions have widened policy gaps.
- **Perceived Violation of Collective Security**: U.S. argues denial of support contradicts Article 5 commitments.

U.S. Role in NATO

- **Financial Contribution**: U.S. contributes a major share of defence spending and operational costs.
- **Military Leadership**: Provides strategic command, nuclear umbrella, and key military infrastructure.
- **Global Security Provider**: Plays a central role in NATO-led operations across regions.

Challenges in U.S. Withdrawal

- **Legal Constraints**: U.S. law mandates Congressional approval for exiting NATO.
- **Treaty Obligations**: Article 13 requires formal one-year notice, making exit procedurally complex.
- **Strategic Costs**: Withdrawal could weaken U.S. global influence and alliance credibility.

Global Implications

- **Security Architecture Shift**: Could destabilize transatlantic security and weaken Western alliances.
- **Rise of Rival Powers**: Russia and China may gain strategic advantage.
- **Impact on Conflicts**: Ongoing conflicts like Ukraine may face uncertainty in support mechanisms.

Way Forward

- **Alliance Reforms**: Strengthening burden-sharing and aligning strategic priorities among members.
- **Diplomatic Engagement**: Enhancing dialogue to address mutual concerns and prevent fragmentation.
- **Institutional Adaptation**: Reforming NATO to suit evolving geopolitical realities.

2. UNDP Report on West Asia Crisis

Why in the news?

- Recently, the United Nations Development Programme (UNDP) released a report titled 'Military Escalation in The Middle East: Human Development Impacts Across Asia and the Pacific'.

Key findings

- **Global Levels:** Military escalation in West Asia/Middle East is worsening human development pressures across Asia-Pacific.
  - Globally, up to 8.8 million people could be pushed into poverty under severe scenarios.
- **Poverty**: India's poverty increase ranges from about 4 lakh to 2.5 million people, depending on the scenario.
  - In the most severe estimate, about 24.6 lakh people may be pushed into poverty.
- **Human Development Index (HDI) impact:** India may lose around 0.03 to 0.12 years of human development progress, while neighbouring countries like Nepal and Vietnam may also see smaller losses of about 0.02 to 0.09 and 0.02 to 0.07 years respectively.
- **Economic effects:** India's non-oil exports to the region, worth around $48 billion, include products like basmati rice, tea, gems and jewellery, and apparel, while countries such as Bangladesh and India also face disruptions in shipments and logistics.
- **Labour impact:** Around 9.37 million Indians live in GCC countries, and remittances from the Gulf make up about 38-40% of India's total inward remittances.

Way Forward

- Despite the negative impacts of the conflict, countries also have an opportunity to strengthen long-term resilience by improving social protection systems
- Countries need to build stronger local and regional supply chains.
- And they need to diversify energy and food systems to reduce future vulnerability.

"After completing engineering, I worked briefly in Chennai before joining the Telangana Irrigation Department as an AEE in 2016. While working, I prepared for the Civil Service exam for 5 years. I couldn't clear prelims in my first two attempts, wrote Mains in 2019, and missed the 2020 interview by seven marks. In 2021, I finally received the interview call and scored 201 marks in the interview. This was possible due to the mock interviews and guidance at R.C. Reddy IAS Study Circle. R.C. Reddy Sir also gave me many valuable suggestions."

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GENERAL STUDIES - 3

A. INDIAN ECONOMY

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

1. CENTRE CUTS EXCISE DUTY ON PETROL AND DIESEL

Why in News?

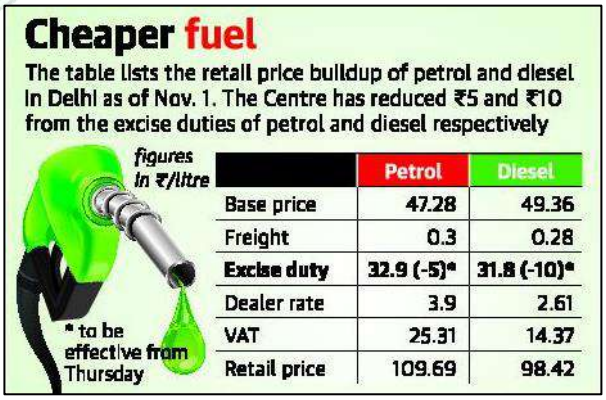
- The Union government cut the **special additional excise duty** on petrol and diesel to ease the financial burden oil marketing companies (OMCs) from high global crude prices.

What is Excise Duty?

- A **tax levied on the manufacture of goods** within India (e.g., petrol, diesel, alcohol, tobacco).
- Collected by the **Central Government** and Important source of revenue for the Union budget.

Why Does the Centre Cut Excise Duty?

- To **control inflation** when fuel prices rise sharply.
- To **provide relief to households** and industries dependent on fuel.
- To **support economic growth** by lowering transport and production costs.
- Sometimes done during **festive seasons or crises** to ease public sentiment.
- **The cut aims to reduce the fiscal strain** that oil marketing companies have been absorbing because international oil prices remain high.



	Petrol	Diesel
Base price	47.28	49.36
Freight	0.3	0.28
Excise duty	**32.9 (-5)***	**31.8 (-10)***
Dealer rate	3.9	2.61
VAT	25.31	14.37
Retail price	109.69	98.42

Key Measures

- **Excise duty cut:** ₹10 per litre reduction on petrol and diesel.**:** After the cut, **diesel duty effectively becomes zero** and **petrol duty falls to ₹3 per litre**.
- **Export duty hikes:** Export duty on **diesel** raised to **₹21.5 per litre**; on **ATF (aviation turbine fuel)** raised to **₹29.5 per litre**.
- **Short-term fiscal estimate:** The duty reduction is expected to cost the exchequer about **₹7,000 crore over the next 15 days**.
- **Offset revenue:** Higher export duties are projected to add roughly **₹1,500 crore**, partially offsetting the excise loss.
- **Official stance:** The government clarified that this change will **not** be passed on to consumers as lower pump prices.

Government Rationale

- **Protect OMC balance sheets: The cut aims to reduce the fiscal strain** that oil marketing companies have been absorbing because international oil prices remain high.
- **Stabilise domestic supply economics:** By adjusting duties and export levies, the government seeks to manage margins and discourage excessive exports that could tighten domestic availability.

Market and Consumer Impact

- **No immediate price relief:** Retail fuel prices at pumps are expected to remain unchanged despite the duty cut.
- **Short-term fiscal pressure:** The exchequer will bear a near-term revenue hit, partly mitigated by higher export levies.
- **Export behaviour:** Increased export duties make exporting diesel and ATF less attractive, which could help maintain domestic supplies.

Policy Implications and Considerations

- **Temporary measure:** The announcement appears aimed at short-term relief for OMCs rather than long-term consumer subsidy.
- **Fiscal trade-offs:** Policymakers must balance supporting OMCs, protecting consumers, and maintaining revenue targets.
- **Monitoring required:** Watch for changes in pump pricing, OMC margins, and international crude trends to assess whether further interventions are needed.

Fuel taxes

Fuel taxes are a major revenue source for Centre and states and explain large price differences across states.

Central levies (what the Union government charges)

- **Central Excise Duty / Basic Excise:** A fixed rupee amount per litre set by the Centre; it is a direct component of the retail price.
- **Special Additional Excise Duty / Road Cess (if applicable):** Additional per-litre levies the Centre can vary for fiscal or policy reasons (recently adjusted to ease OMC margins).
- **Export Duties (when applied):** Centre can levy export duties on diesel/ATF to discourage exports and protect domestic supply; revenue from these duties goes to the Centre.

State levies (what state governments charge)

- **Value Added Tax (VAT) / Sales Tax: The main state component**; charged as a percentage of the retail price and **varies by state**, causing price differences across India.
- **State Cesses and Surcharges:** Some states add small cesses or surcharges for road funds or special purposes; these are layered on top of VAT.

Other price components (not taxes but affect final pump price)

- **Dealer commission and dealer margin:** Fixed or percentage margins paid to fuel retailers.
- **Oil Marketing Company (OMC) margins and freight:** Distribution, storage and marketing costs included in retail price.

Conclusion:

The ₹10-per-litre excise cut eases the fiscal burden on oil marketing companies but does not lower pump prices, making it a short-term fiscal trade-off.

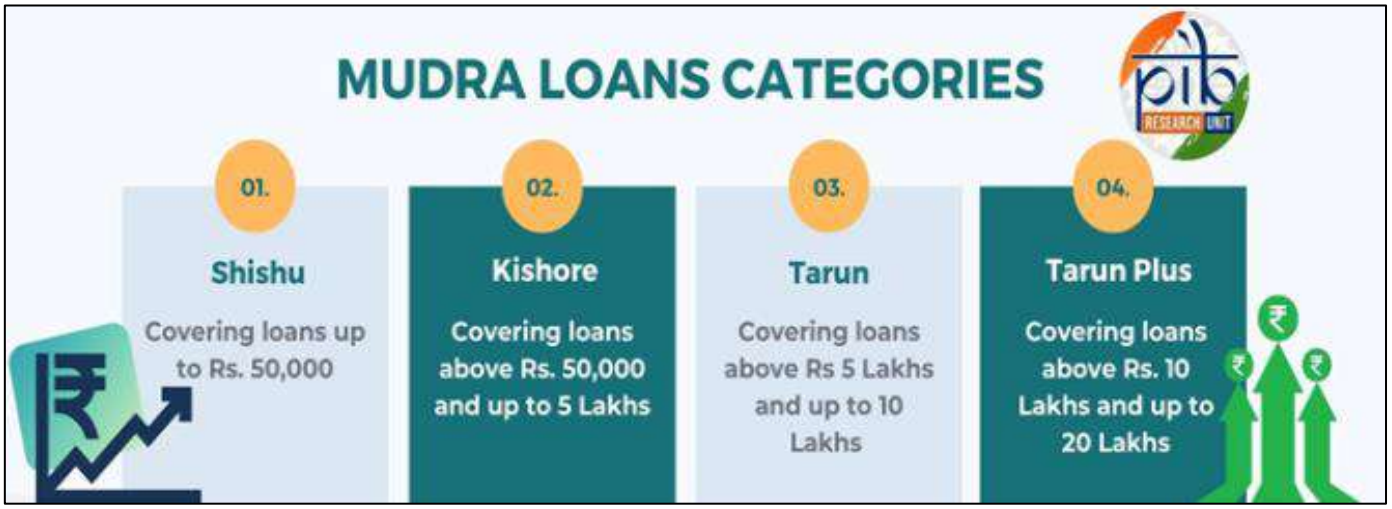
2. PRADHAN MANTRI MUDRA YOJANA (PMMY)

Why in News?

- The Prime Minister recently praised the **success of PMMY on its 11th anniversary**, highlighting its role in expanding financial inclusion and entrepreneurship.

MUDRA Scheme

- **Launch & Implementation:** Introduced on **8 April 2015**, implemented by the **Department of Financial Services, Ministry of Finance**.
- **Loan Provision:** Offers **collateral-free loans** to non-corporate, non-farm micro and small enterprises (MSEs) through **banks, NBFCs, RRBs, and MFIs**.
- **Support Mechanisms: MUDRA Ltd.** (subsidiary of SIDBI) provides refinance support. **Credit Guarantee Fund for Micro Units (CGFMU)** covers risks for lenders.
- **Beneficiary Tools:** Loans available to **individuals, firms, and companies**; the **MUDRA Card** functions like a RuPay debit card with an overdraft facility for working capital.



Achievements of Pradhan Mantri MUDRA Yojana

- **Massive Credit Outreach**: More than **57 crore loans sanctioned**, with a total value exceeding **₹40 lakh crore**.
- **Women Empowerment**: Around **67% of beneficiaries are women**, making the scheme a driver of Nari Shakti.
- **Social Inclusion**: Over **51% of loans** have gone to **SC, ST, and OBC communities**, promoting equity.
- **First-Time Entrepreneurs**: Nearly **12 crore new accounts** opened, integrating grassroots entrepreneurs into the formal banking system.
- **Peak Performance**: In FY 2023-24, a record **6.67 crore loans worth ₹5.41 lakh crore** were sanctioned, showing strong momentum.

Challenges in PMMY

- **Overdependence on Shishu loans**: More than 70% of lending remains in the smallest category, limiting the graduation of micro-units into SMEs.
- **Weak capacity building**: Lack of financial literacy, business skills, and market access reduces borrowers' ability to use credit productively.
- **Sectoral imbalance**: Loans are concentrated in trading and services, with minimal impact on manufacturing and job creation.
- **Rising NPAs**: Collateral-free lending and inadequate credit checks have led to increasing defaults.

- **Debt substitution**: A significant share of loans is used to repay informal debt rather than create new assets.

Way forward

- **Shift to cash-flow based lending**: Use Account Aggregator and GSTN data for dynamic credit assessment instead of collateral reliance.
- **Adopt a credit-plus approach**: Combine loans with skill training, digital platforms, and market linkages to ensure enterprise growth.
- **Deploy AI-driven monitoring**: Track loan usage and detect early warning signals to prevent diversion and defaults.
- **Encourage micro-manufacturing**: Provide targeted incentives and guarantee coverage to promote small-scale manufacturing units.
- **Strengthen NBFCs and MFIs**: Empower institutions with last-mile connectivity and expertise in grassroots credit delivery.

Conclusion

PMMY has empowered millions through **enterprise, earning, and empowerment (3Es)**. With reforms like **Tarun Plus** the scheme can drive sustainable growth, strengthen financial inclusion, and support the vision of **Atmanirbhar Bharat**.

II. Growth and Development, employment

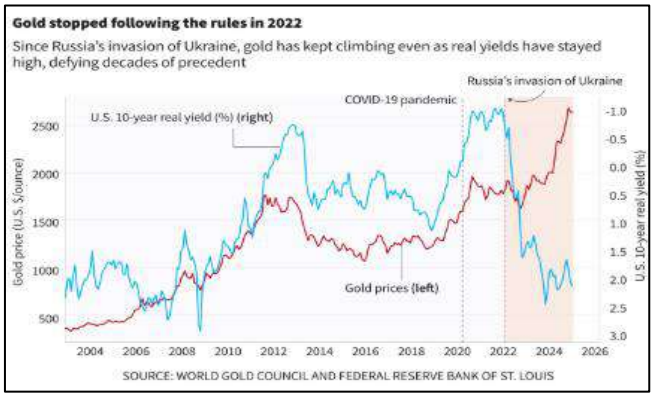
1. FALL IN GOLD PRICES AND OUTLOOK

Why in News?

- Gold prices, traditionally seen as a safe haven during crises, have fallen sharply since the **West Asian conflict (Feb 2026)**.

Role of Gold in Crises

- **Safe-haven asset:** Gold does not yield interest, but becomes attractive when **bond yields fall** or **uncertainty rises**.
- **Currency link:** A **weaker US dollar** generally boosts global demand for gold, as it becomes cheaper for non-dollar holders.
- **Historical performance:**
  - **2008 Global Financial Crisis:** Gold prices surged as investors sought safety.
  - **COVID-19 Pandemic (2020):** Sharp rise in gold demand amid global economic uncertainty.
  - **Russia-Ukraine War (2022):** Gold rallied due to geopolitical risk and inflation fears.



Key Economic Shifts

- **Oil Shock:** Conflict pushed crude oil above **$120/barrel**, intensifying inflationary pressures.
- **Interest Rate Expectations:** Global markets anticipate **prolonged high interest rates**, making bonds relatively more attractive than gold.
- **Stronger Dollar:** Rising demand for U.S. assets strengthened the dollar, making gold costlier for foreign buyers.
- **Liquidity Crunch:** Investors sold gold to cover losses in equities, booking profits after its long rally.

Challenges

- **Volatility**: Prices highly sensitive to oil shocks and interest rate expectations.
- **Dollar Dominance**: Global trade still dollar-driven, limiting gold's immediate appeal.
- **Consumer Impact**: High prices reduce jewellery demand, affecting India's gold market.

Way Forward

- **Diversify Reserves**: Countries may continue shifting toward gold to reduce reliance on dollar assets.
- **Strengthen Domestic Market**: Promote gold ETFs and digital gold to stabilise investment demand.
- **Monitor Oil & Rates**: If oil stabilises and rate hike fears ease, gold could regain appeal.
- **Investor Strategy**: Treat current correction as temporary; long-term fundamentals remain strong.

What are Bonds?

A bond is a debt instrument where the issuer (government/company) borrows money from investors and promises fixed interest (coupon) plus repayment at maturity.

- **Face Value (Par):** The original value (e.g., ₹1,000).
- **Coupon Rate:** Fixed interest paid periodically.
- **Maturity:** Time when the principal is repaid.

Bond Price vs Yield Relationship

- **Inverse Relation:**
  - Price ↓ → Yield ↑ (investor pays less, gets same fixed cash flows).
  - Price ↑ → Yield ↓ (investor pays more, gets same fixed cash flows).
- **Example:**
  - A ₹1,000 bond with 7% coupon.
  - If price rises to ₹1,050 → yield falls.
  - If price falls to ₹950 → yield rises.

Conclusion

The fall in gold prices is driven by **higher interest rate expectations, a stronger dollar, and liquidity pressures**. While short-term volatility persists, central bank buying and India's investment demand suggest that gold's long-term role as a safe haven remains intact.

2. SOLARISATION AS FISCAL REFORM

Why in News?

- India's government is reframing **solarisation schemes** not just as clean energy initiatives but as **fiscal reforms** to reduce the ₹2.4 lakh crore annual electricity subsidy burden of States.

Power Sector Landscape

- **Installed Capacity:** As of **March 2026**, India's total installed power capacity stands at **535 GW**, including **150 GW solar**, with **54% from non-fossil sources**.
- **Subsidy Pattern:** Energy subsidies are concentrated in **agriculture and domestic consumers**, creating recurring fiscal burdens.
- **Solarisation Strategy:** Promoted as a tool to **reduce subsidy liabilities**, cut recurring costs, and improve efficiency in power distribution.
- **Public Finance Impact:** Solar adoption is being positioned as a way to **restructure public finances**, easing the strain on state budgets and enabling long-term sustainability.

Solarisation as Fiscal Reform

- **Cutting Subsidy Burden:** India spends about **₹2.4 lakh crore annually** on electricity subsidies; shifting agriculture and households to **low-cost solar power** reduces this recurring liability.
- **Easing Cross-Subsidies:** Industries and commercial users pay **higher tariffs** to offset subsidies; solarisation lowers this pressure, as seen in schemes like **MSKVY 2.0 (16 GW target)**.
- **Restructuring State Finances:** Programmes like **PM Surya Ghar** (target: **1 crore rooftop solar by 2027**) help States save subsidy expenditure and redirect funds to welfare and infrastructure.

Reframing Solar Policy

- **Shift in Narrative:** Moves from a purely **climate-centric approach** to a **fiscal sustainability strategy**.
- **Core Aims:** Replace **subsidised grid electricity** with **low-cost solar power**. Reduce the **subsidy burden on State finances**. Ease the **cross-subsidy pressure** on industries and commercial users.
- **Policy Dimension:** Positions solarisation not just as clean energy, but as a **financial reform tool** to restructure subsidies and improve fiscal health.

Schemes Driving Transition

- **PM-KUSUM (Agriculture):** Solarisation of agricultural feeders and standalone solar pumps. Cuts dependence on costly grid power and diesel pumps.
- **Maharashtra Model (MSKVY)**: Decentralised solar plants (2-10 MW) near substations. Reduced cross-subsidy charges, lower tariffs, replacement of diesel pumps.
- **PM Surya Ghar (Households):** Target **1 crore rooftop solar installations by March 2027**.
- **Utility-Led Aggregation (ULA) model**: Electricity utilities install rooftop solar using their own funds or RESCO model, with **zero upfront cost for consumers**.

Challenges

- **Fragmented Governance**: The Ministry of New and Renewable Energy (MNRE) lacks full authority under the Electricity Act, 2003, limiting its role in renewable energy regulation.
- **Domestic vs Imports**: The Approved List of Models and Manufacturers (ALMM) mandates use of domestic solar equipment, but these are costlier and less available compared to cheaper imports (e.g., Chinese solar cells).
- **Behavioural & Fiscal Barriers**: Poor households have little incentive to adopt solar due to subsidised/free electricity; vendors face supply constraints; States differ in fiscal capacity and political willingness.

Way Forward

- **Empower MNRE**: Recognise MNRE as the "Central Government" authority for renewables under the Electricity Act to streamline governance.
- **Strengthen Coordination**: Improve collaboration between MNRE, Ministry of Power, and State DISCOMs for smoother implementation.

- **Scale Innovative Models**: Expand **Utility-Led Aggregation (ULA)** for household solar adoption and replicate Maharashtra's **decentralised solar feeder model** for agriculture.
- **Balance Manufacturing & Affordability**: Rationalise ALMM norms, incentivise domestic production, and support technology upgrades to ensure cost-effective solarisation.

Conclusion

PM-KUSUM and PM Surya Ghar can reshape both the energy transition and fiscal federalism. If scaled effectively, solarisation could become a cornerstone of India's **energy security and fiscal sustainability**

3. UNEVEN CONSUMPTION GROWTH IN RURAL STATES

Why in News?

- Recent **Household Consumption Expenditure Survey (HCES)** data (2011-12 vs 2023-24) shows that rural-dominated States are witnessing uneven consumption growth patterns.

Rural Consumption Dynamics (HCES 2011-12 vs 2023-24)

- **Rural Significance:** In states where **70%+ of the population lives in villages**, rural households remain central to consumption growth, even though India's narrative is often urban-driven.
- **Measurement Basis:** Analysis uses **Monthly Per Capita Consumption Expenditure (MPCE)**, adjusted for inflation with **CPI data**, to capture real spending power.
  - **Rural MPCE (2023-24): ₹4,122** (₹4,247 including welfare items).
  - **Urban MPCE (2023-24): ₹6,996** (₹7,078 including welfare items).
- **Real Growth Rates:** Urban-rural gap declined to **70% in 2023-24**, from **71% in 2022-23** and **84% in 2011-12**.
- **Uneven State Patterns:** Rural-dominated states show divergent growth.
  - **Odisha:** Highest rural MPCE increase (**14%**).
  - **Punjab:** Highest urban MPCE increase (**13%**).
  - **Kerala:** Lowest urban-rural gap (**18%**).
  - **Jharkhand:** Highest gap (**83%**).

Additional Dimensions:

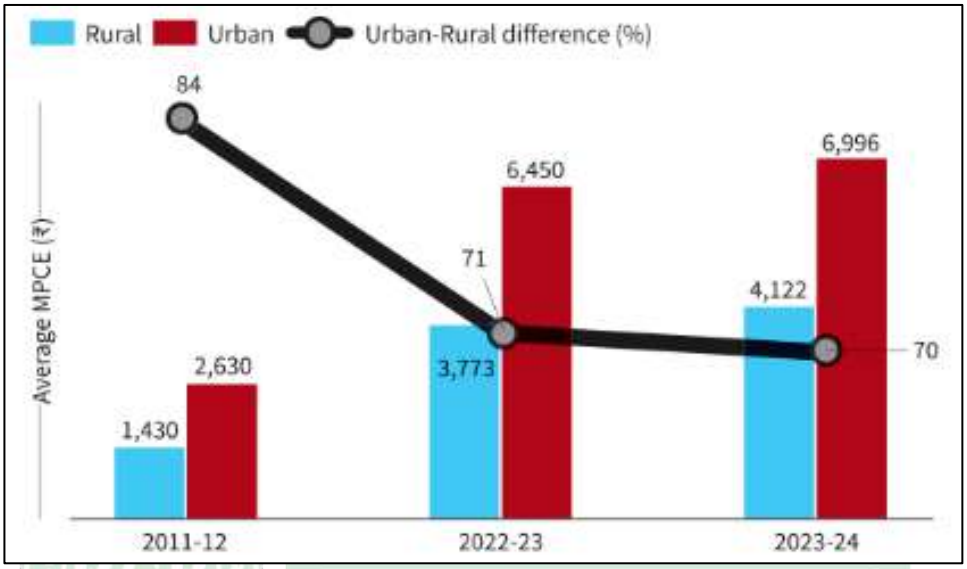
- **Food vs Non-Food:** Rural households spend **47% of MPCE on food**, urban households **40%**, with rising shares for education, health, and services.
- **Inequality Trends:** Gini coefficient fell - rural **0.237 (2023-24)** vs **0.266 (2022-23)**; urban **0.284 (2023-24)** vs **0.314 (2022-23)**, showing declining consumption inequality.
- **Social Groups:** MPCE for Scheduled Tribes rose to **₹3,363 (rural)** and **₹6,030 (urban)** in 2023-24, reflecting welfare impact.

State-Wise Consumption Trends (HCES 2023-24)

- **High Growth States:** Bihar (rural 4.7%, urban 4.6%), Odisha (4.5%, 4.0%), and Himachal Pradesh (4.0%, 3.7%) show **balanced growth above national averages**.
- **Rural-Driven Growth:** States like **Jharkhand, Madhya Pradesh, and Uttar Pradesh** see rural consumption growth outpacing urban, highlighting villages as demand drivers.
- **Urban-Driven Growth: Chhattisgarh** shows stronger urban growth (3.2%) compared to rural (3.1%), indicating cities pulling ahead.
- **Reversal of Pattern:** In several states, **rural consumption growth now matches or exceeds urban growth**, challenging the traditional urban-led demand narrative.

Importance of Consumption Expenditure for the Economy

- **Major Component of GDP**: In India, **private final consumption expenditure (PFCE)** contributes nearly **55-60% of GDP**, making it the single largest driver of economic growth.
- **Indicator of Living Standards**: **Monthly Per Capita Consumption Expenditure (MPCE)** is used to measure household welfare and poverty.
- **Urban vs Rural Trends**: According to the **Household Consumption Expenditure Survey (HCES) 2023-24**, rural MPCE has grown at **3.4% annually in real terms**, while urban MPCE grew at **2.9%**.



Significance of HCES Findings

- **State-Specific Growth:** Consumption growth is increasingly **shaped by local economic conditions and structural factors**, showing divergent state patterns.
- **Rural Demand Rising:** Rural India is not just catching up but is **emerging as a key driver of demand**, challenging the assumption that cities alone fuel consumption.
- **Policy Relevance:** Welfare and development strategies must **recognise regional diversity in consumption trends** to be effective and equitable.
- **Additional Dimension:** The survey also highlights **shifts in spending composition (food vs non-food), declining inequality, and social group variations**, making rural consumption a crucial lens for policy design.

Conclusion

While Bihar and Odisha lead with balanced expansion, others show uneven patterns. This underscores the need for **State-tailored policies** to sustain inclusive growth across India's diverse economic geography.

4. MINIMUM WAGE CRISIS AND WORKER PROTESTS IN INDIA

Why in News?

- Thousands of workers in **Noida** protested violently demanding higher minimum wages, better working conditions, and overtime pay, following Haryana's **wage hike** and rising living costs.

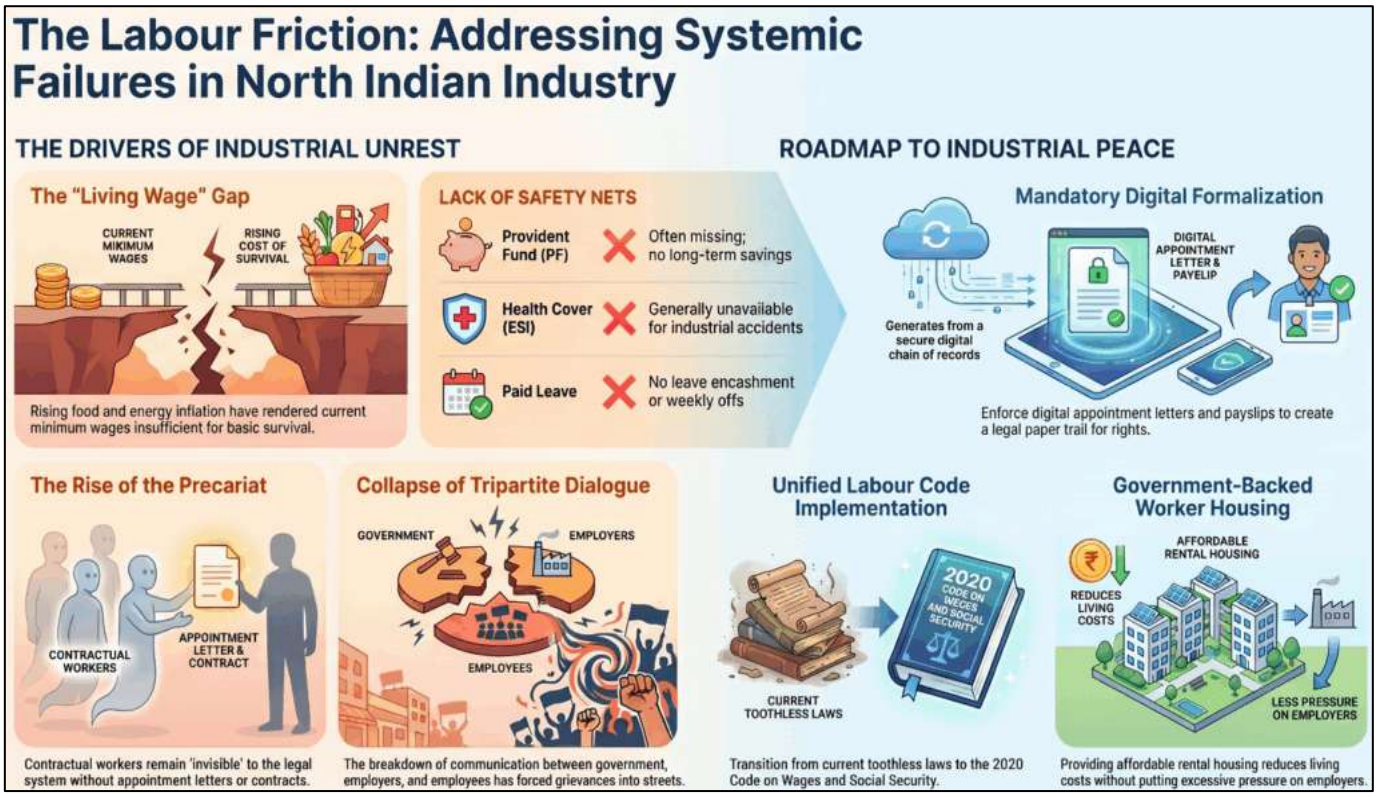
What is Minimum Wage in India

- Defined under the **Code on Wages, 2019** (yet to be fully implemented).

- **Two components:**
  - **Base wage** revised every 5 years.
  - **Cost of Living Allowance (DA)** - linked to **CPI-IW**, revised twice a year.
- **Current confusion:** Centre announced ₹783/day (₹20,358/month) for unskilled workers in certain sectors (2024), but **state governments set wages for most establishments**, leading to disparities.

How Workers are Being Exploited

- **Delayed Revisions**: Haryana revised after 10 years; UP last revised in 2012.
- **Mismatch with Inflation**: CPI-IW inflation rose **24.8% (2021-26)**; NCR regions saw ~27% rise. Wage growth lagged: Haryana (15%), Delhi (20.6%), UP (24.6%).
- **Living Costs**: LPG cylinders in black markets up to ₹4,000. Rising rents and food prices burden migrant workers.
- **Work Hours Confusion**: New labour codes allow flexible shifts (e.g., 12-hour), risking overwork.
- **Weak Collective Bargaining**: Labour codes leave union recognition to states, reducing worker protection.



Role of EPFO Regulations in Worker Protection

- **Provident Fund Contributions:** Under the **Employees' Provident Funds and Miscellaneous Provisions Act, 1952**, employers and employees contribute **12% of wages each** to the Provident Fund, ensuring retirement savings and social security.
- **Universal Coverage:** Mandatory for establishments with **≥20 workers** (Section 1(3), EPF Act). The **Code on Social Security, 2020** seeks to expand coverage to smaller establishments and informal workers.
- **Compliance Monitoring:** EPFO has powers under **Section 7A of the EPF Act** to inspect records and penalize employers for wage under-reporting or non-payment of contributions.
- **Social Security Benefits:** Workers get **EPF (retirement savings), EPS (pension), and EDLI (insurance)** - providing a financial cushion during retirement, disability, or death.
- **Informal Sector Exclusion:** Despite covering **6.5 crore active members (EPFO Annual Report 2023)**, millions of informal and contract workers remain outside EPFO.

Challenges

- **Fragmented Implementation:** Labour Codes (2020) are not uniformly enforced across states; **Ministry of Labour & Employment** notes delays in rule-making.
- **Regional Disparities:** Wage levels vary widely - e.g., **average rural wage ₹315/day vs urban ₹415/day (PLFS 2023)** - creating inequality across states.
- **Global Disruptions:** US tariffs, West Asia war, and **Strait of Hormuz crisis** raised input costs; **ILO reports** show global shocks delay wage hikes.
- **Worker Expectations vs Reality:** Misinterpretation of **Central Wage Notifications (2022)** led to unrest; **EPFO data** shows mismatch between notified wages and actual coverage.

Way Forward

- **Timely Base Wage Revision:** Enforce strict **5-year cycle** for wage updates; as recommended by the **National Commission on Labour**, ensuring predictability.
- **Indexation to Inflation:** Link wages to **CPI-IW (Consumer Price Index for Industrial Workers)**; **Labour Bureau data** supports automatic inflation-based revisions.
- **Uniform Labour Code Implementation:** Centre and states must finalize rules quickly; **Ministry of Labour & Employment** should monitor compliance for consistency.
- **Expand Social Security Coverage:** Extend **EPFO and ESIC** to gig workers, contract labour, and small establishments; aligned with **Code on Social Security, 2020** and **ILO recommendations**.

Conclusion

Strengthening **EPFO coverage, timely wage updates, and collective bargaining** is essential to protect workers and ensure fair compensation in a rapidly changing economy.

III. Inclusive growth and issues

1. TRENDS IN INDIA'S FEMALE CREDIT MARKET

Why in News?

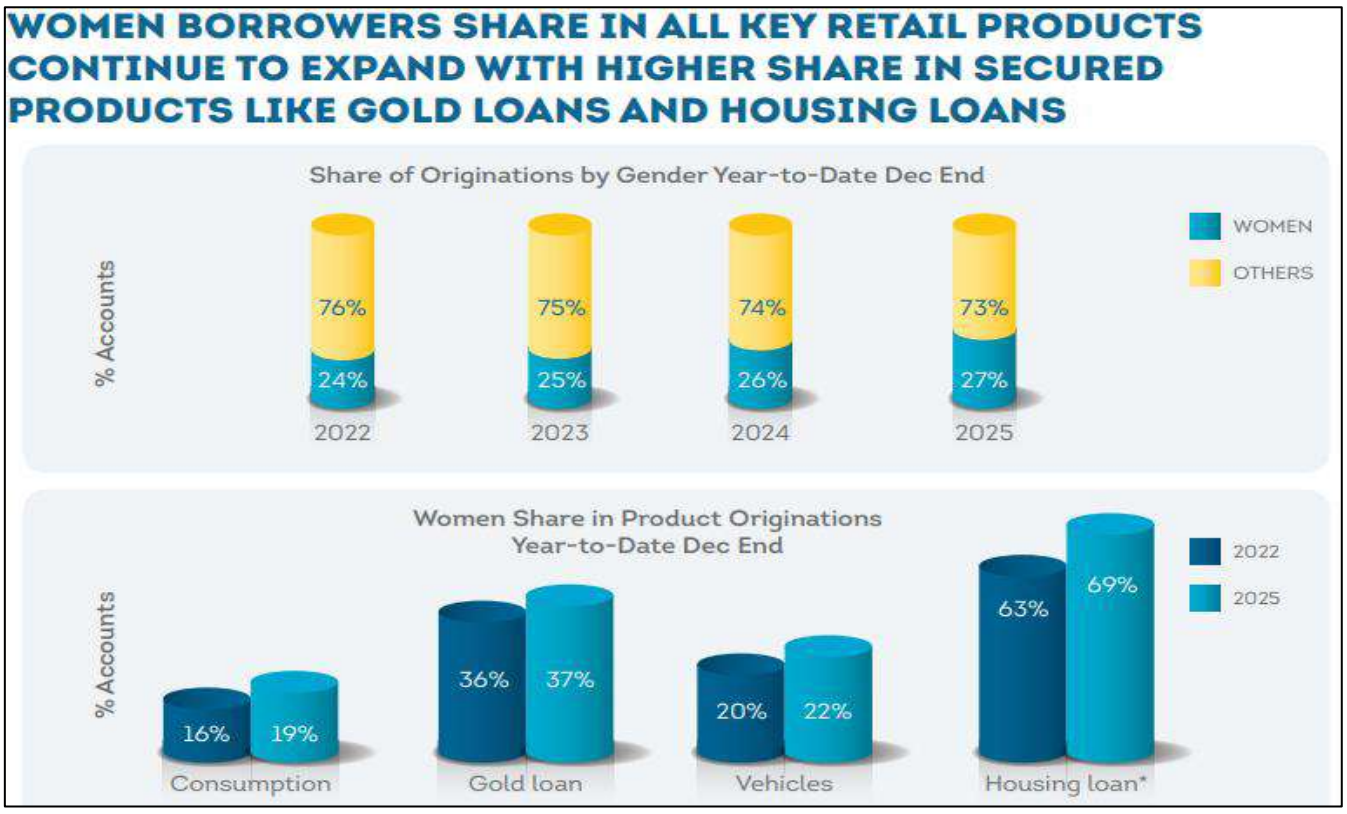
- A recent joint report by NITI Aayog, TransUnion CIBIL, and MicroSave Consulting (MSC) highlights that women are emerging as key drivers of entrepreneurship and credit growth in India.

Major Findings of the Report

- **Portfolio Growth**: Women now hold a credit portfolio worth **₹76 lakh crore**, forming **26% of total system credit**-a nearly fivefold rise since 2017.
- **Business Lending Surge**: Loans for business purposes have grown **7.5 times since 2017**, now making up **25% of women's total credit value**.
- **Credit Penetration**: Share of credit-active women doubled from **19% (2017) to 36% (2025)**, representing **16 crore borrowers**.
- **Digital Impact**: UPI and Aadhaar e-KYC have reduced friction; same-day loan approvals rose from **34% (2022) to 45% (2025)**.
- **Regional Trends**: South and West India lead in volumes, while **Bihar and Uttar Pradesh** show high growth (CAGR of 59% and 42%).
- **Rural Women Nano-Entrepreneurs (RWNEs)**: 60-70% use digital payments, but independent usage is limited by **time poverty** and shared devices.

Challenges Identified

- **Time Poverty**: Household responsibilities restrict women's ability to engage with digital finance independently.
- **Limited Autonomy**: Many RWNEs lack decision-making power over credit and investments.
- **Slow Secured Loan Approvals**: Housing loans face delays due to property valuation and collateral checks.
- **Microfinance Stress**: Rising NPAs and over-indebtedness have led to cautious lending.
- **Decline in New-to-Credit Borrowers**: Fewer first-time women borrowers since 2023.
- **Low Adoption of Complex Products**: Only ~4.3% of women-owned businesses use advanced credit facilities.



Recommendations

- **Flow-Based Lending:** Use **digital footprints** (UPI transactions, GSTN records) for cash-flow-based underwriting instead of relying only on collateral.
- **Credit Education:** Expand programmes like **Project Seher** to improve awareness, financial literacy, and help women maintain better credit scores.
- **Gender-Specific Products:** Design loan products with **flexible repayment options** aligned to women's business cycles and seasonal income flows.
- **Peer Collectives:** Leverage **Self-Help Groups (SHGs)** to build trust in digital tools and encourage collective adoption of financial services.
- **Digitisation of Loan Lifecycle:** Implement **end-to-end digital processes** to speed up secured loan approvals and reduce paperwork delays.
- **Data-Driven Policy:** Use **granular credit bureau data** to identify regional gaps and design targeted interventions for women entrepreneurs.

Conclusion

By addressing barriers like time poverty and expanding digital underwriting, India can move from **financial inclusion to women-led economic growth**, supporting inclusive development goals.

2. RISE IN MIDDLE CLASS VULNERABILITY

Why in News?

- A recent **World Bank policy paper** highlights that while India has reduced income-based poverty, a large section of the population remains stuck in a **vulnerable middle class**, lacking economic security.

Poverty Reduction landscape in India:

- **Decline in Poverty:** The share of Indians below the **lower middle-income poverty line** has fallen from **50% a decade ago to ~30% today**, showing significant progress.
- **Role of Welfare Schemes:** Initiatives like **subsidised food, direct cash transfers, and financial inclusion programmes** have reduced extreme deprivation.
- **Fragile Gains:** Crossing the poverty line does not ensure stability; many households remain in a **vulnerable zone with low and volatile incomes**.
- **Policy Implication:** Poverty reduction must be complemented with **income stability measures and social protection** to prevent households from sliding back.

Key Concerns

Growth Without Mobility

- India's growth has not translated into broad-based economic opportunity.
- Sectors driving growth are **capital-intensive**, absorbing limited labour.
- Formal employment remains scarce: fewer than **10% of workers** have jobs with social security.

Income Vulnerability

- Data from the **e-Shram portal** shows **94% of informal workers earn less than ₹10,000/month**.
- Average farm household income is **₹10,218/month**, translating to just **₹75 per person per day**.
- Real wages for salaried workers have stagnated despite productivity gains.

Labour Market Stress

- Manufacturing failed to absorb new entrants; between 2016-2021, the sector lost **24 million jobs**.
- Agriculture still employs **46% of workforce** but contributes only **18% of GDP**, reflecting low productivity.
- Youth unemployment is around **45%**, with graduate unemployment at **29%**.

Inequality and Wealth Concentration

- India has **271 billionaires** holding wealth equal to one-fourth of national income.
- The top **1% captures over 22% of national income**, widening inequality.

Household Fragility

- Net household financial savings have fallen to **~5% of GDP**, while debt has risen sharply.
- Credit is increasingly used to sustain consumption rather than build assets.
- Human development indicators remain weak: child wasting at **18.7% (highest globally)** and stunting at **35.5%**.

Policy Implications

- **Shift Focus to Mobility:** Poverty fell sharply - **171 million people escaped extreme poverty (2011-23)**, but many remain vulnerable; policy must ensure **secure upward mobility**.
- **Generate Productive Employment:** Labour force participation is low, especially for women; large states like **UP (5.94 crore) and Bihar (3.77 crore out of poverty)** show jobs drive poverty decline.

- **Promote Inclusive Growth: Multidimensional poverty dropped from 29.17% (2013-14) to 11.28% (2022-23)**; sustaining gains requires universal **education, healthcare, and social security**.
- **Address Structural Bottlenecks:** Rural poverty fell from **18.4% (2011-12) to 2.8% (2022-23)**, but productivity gaps in **agriculture and manufacturing** demand targeted reforms for stable incomes.

Way Forward

- **Enable Upward Mobility & Social Protection:** Expand **PM-KISAN, Jan Dhan, Ayushman Bharat** to secure incomes; NITI Aayog stresses mobility pathways beyond poverty reduction.
- **Generate Large-Scale Employment:** Strengthen **Skill India, Start-Up India** and labour-absorbing sectors; the **National Commission on Labour** highlights formalisation and wage-linked productivity.
- **Boost Human Capital Investment:** Raise spending to **6% of GDP on education (Kothari Commission)** and **2.5% on health (National Health Policy)**; scale **Samagra Shiksha, Ayushman Bharat Digital Mission**.
- **Address Structural Bottlenecks:** Reform **MSP, irrigation, crop diversification** and expand **PLI schemes**; the **Rangarajan Committee** underlined structural reforms for stable incomes.

How the World Bank Measures Poverty

Household Surveys

- Poverty estimates are based on nationally representative household surveys.
- These surveys collect data on income, consumption, and expenditure patterns.

Welfare Aggregates

- Household data is converted into **welfare aggregates** (income or consumption per person).
- Consumption is often preferred over income because it better reflects living standards in developing countries.

Purchasing Power Parity (PPP) Adjustment

- To make comparisons across countries, welfare aggregates are adjusted using **PPP exchange rates.**
- This ensures that $1 in India reflects the same purchasing power as $1 in another country.

International Poverty Lines

- The World Bank defines poverty thresholds at different levels:
  - **Extreme Poverty**: $2.15/day (2017 PPP) - minimum subsistence level.
  - **Lower-Middle Income Poverty**: $3.65/day - relevant for countries like India.
  - **Upper-Middle Income Poverty**: $6.85/day - used for more advanced economies.

Headcount Ratio

- The most common measure is the **headcount ratio**: the share of the population living below a given poverty line.
- **Example:** If 30% of Indians live below $3.65/day, that is the lower-middle income poverty rate.

Conclusion

The task ahead is to **restore the link between growth and opportunity**, ensuring that progress translates into durable improvements in living standards.

IV. Agriculture and allied

1. INDIA'S FERTILISER CRISIS AND SUPPLY SHOCKS

Why in News?

- Fertiliser prices in India have surged sharply due to **supply disruptions from the US-Israel-Iran conflict** and the **closure of the Strait of Hormuz**.

Background - Fertiliser Dependence in India

- **Import Reliance:** India is **heavily dependent on imports** for key fertilisers like **urea and DAP**.
- Annual **urea consumption ~39-40 million tonnes (mt)**, while domestic production is only **30-31 mt**, leaving a gap of **9-10 mt** to be met through imports.
- **Gulf Region's Role:** The **Gulf countries supply ~40% of India's fertiliser imports**. They also provide **over 60% of India's LNG imports**, which is a **critical feedstock for urea production**.
- **Impact of Disruptions:** Any instability in the Gulf directly affects both **finished fertiliser imports** and **domestic production capacity**.
- Recent supply shocks have reduced monthly domestic output from the normal **~2.5 mt** to **~1.5-1.8 mt**, worsening shortages.

Price Surge Across Fertilisers

- **Urea:** Jumped to **$935-959/tonne** (from ~$508-512 in February).
- **DAP (Di-Ammonium Phosphate):** Rose to **$865-925/tonne** (from ~$680-720).
- **Sulphur:** Increased to **$900/tonne** (from ~$300-550).
- **Ammonia:** Climbed to **$850-900/tonne** (from ~$435).
- Both **finished fertilisers and raw materials** have become costlier.

Supply Chain Disruptions

- **Strait of Hormuz Closure:** Blocked one of the world's busiest energy routes, restricting **global shipments of oil, gas, and petrochemicals**.
- **Industrial Shutdowns:** Key facilities like **QatarEnergy (gas)** and **Maaden (fertilisers, Saudi Arabia)** were forced to halt operations after Iranian strikes, worsening supply shortages.
- **India's Diversification Attempt:** India turned to **Indonesia, Malaysia, Morocco, and Jordan** for alternative supplies.
- **Global Competition:** Rising demand from **South American buyers** intensified competition, pushing **commodity prices further upward**.

Kharif Season Fertiliser Challenge

- **High Requirement vs Low Stock:** Kharif season needs **~19.4 million tonnes of fertilisers**, but April stock was only **~5.5 mt**, showing a major shortfall.
- **Import Dependence:** Around **40% of imports come from GCC countries**, making India highly exposed to Gulf supply shocks.
- **Energy Vulnerability:** Over **60% of LNG is sourced from the Gulf**, so disruptions directly hit fertiliser output.

Relative Position of Other Fertilisers

- **Better availability:** DAP, MOP, SSP, and complex NPK fertilisers.
- **Critical shortage:** Urea remains the biggest concern.
- **Kharif vs Rabi: Kharif season** May be managed with difficulty but **Rabi season have** Greater risk of shortages due to higher fertiliser demand.

Way forward

- **Shift to Alternative Fertilisers:** TSP (Triple Super Phosphate), MAP (Mono Ammonium Phosphate), SSP. Helps balance nutrient supply despite shortages.
- **Fortified Fertilisers:** Coating urea/DAP with micronutrients (zinc, iron, boron). Adding sulphur, calcium, magnesium. Improves yields and nutrient efficiency.

- **Biostimulants:** Derived from microbes, seaweed, organic matter. Enhance nutrient uptake and soil health. Example: phosphate-solubilising bacteria unlock soil phosphorus.

Conclusion:
Diversification through **alternative fertilisers, fortified products, and biostimulants** can reduce vulnerability and improve nutrient efficiency, ensuring food security in the long run.

V. Effects of liberalization on the economy

1. IRAN CONFLICT AND RISK OF GLOBAL STAGFLATION

Why in News?

- Recently the **Iran crisis raises a real risk of** stagflation because it threatens both energy prices **and physical supply chains, not just prices.**

What is stagflation

- **Definition:** Coexistence of high inflation and low or negative economic growth.
- **Mechanism:** A **negative supply shock** (leftward shift in aggregate supply) raises prices and reduces output, producing the stagflation outcome.

Historical precedent: 1970s lessons

- **Oil shocks triggered stagflation:** The **1973 OAPEC embargo** and the **1979 Iranian Revolution** sharply raised oil costs and contributed to stagnation and high inflation in the US and UK.
- **Policy limits:** Conventional demand management (monetary tightening or fiscal stimulus) struggled because tools that curb inflation worsened growth and vice versa.

Why the 2026 crisis matters

- **Energy chokepoints:** The **Strait of Hormuz** carries a large share of global oil and gas; conflict there can disrupt supplies and spike prices.
- **Price + supply shock:** Unlike some recent episodes (e.g., 2022 price shock), the current crisis threatens **actual shortages** in fuel and petrochemical inputs, amplifying production disruptions.
- **Complex supply-chain effects:** Modern economies are more energy-intensive and interconnected; shortages ripple across fertilisers, plastics and transport, raising costs and cutting output.

Who is Most Vulnerable

- **Energy-Importing Economies:** India imports **~85% of crude oil and 50% of natural gas**, making it highly exposed to global shocks; even a small rupee depreciation adds inflationary pressure.

- **Manufacturing & Agriculture:** Manufacturing GVA grew **7-9% in FY 2025-26**, but rising steel and fertiliser costs threaten margins; agriculture employs **~46% of India's workforce**, making fuel/fertiliser shocks critical.
- **Low-Income Households:** Food and fuel dominate budgets; **over one-third of household income goes to food**, and LPG imports (~60% from Gulf) raise cooking costs, hitting poor families hardest.

Challenges of Stagflation

- **Energy Dependence:** Import-reliant economies like India (**~85% crude oil imports**) face severe inflationary pressures.
- **Sectoral Stress:** Manufacturing margins shrink due to rising input costs (steel, fertilisers). Agriculture, employing **~46% of workforce**, suffers from fuel and fertiliser shocks.
- **Household Burden:** Low-income families spend **over one-third of income on food**; fuel/LPG price hikes hit hardest.
- **Global Spillovers:** Supply chain disruptions ripple across fertilisers, plastics, and transport, raising costs globally.

Way Forward

- **Short-Term Stabilisation:** Use **strategic petroleum reserves**, targeted fuel and food subsidies, and **supply-side diplomacy** through the **Ministry of External Affairs** and **OPEC engagement** to restore energy flows.
- **Balanced Monetary Policy:** RBI must carefully manage inflation expectations while avoiding deep recession guided by **Monetary Policy Committee (MPC) reports** and **IMF recommendations** on stagflation trade-offs.
- **Medium-Term Resilience:** Diversify energy sources via **National Hydrogen Mission, PM-KUSUM, and International Solar Alliance**, strengthen supply chains under **PM Gati Shakti**, and accelerate clean energy transition to reduce future vulnerability.

Conclusion:
Stagflation is possible but not inevitable; its likelihood hinges on how long energy and trade disruptions persist and how effectively policymakers restore supply while managing inflation expectations.

VI. Inflation

1. INDIA'S ENERGY DEPENDENCE INFLATION

Why in News?

- Recently, India's inflation trends highlight **hidden pressures in the economy** and rising fuel costs are pushing up wholesale prices leads to **exposing risks of imported inflation**.

What is imported Inflation?

- Imported inflation means **rising domestic prices caused by higher costs of goods and inputs purchased from abroad**.
- For example, when **global crude oil prices increase**, India pays more for imports, raising transport and fuel costs at home.
- Inflation is the rate at which the general level of prices for goods and services rises over time.
- **Effect:** When inflation increases, the same ₹100 buys fewer goods and services.
- **Simple Example:**
  - Suppose a packet of rice costs ₹50 today.
  - Next year, if the same packet costs ₹55, the price has increased by ₹5.
  - The inflation rate here is **10%** (₹5 increase on ₹50).

Background

- **CPI vs WPI:** CPI now uses the 2024 base year, while WPI still uses 2011-12, creating divergence in readings.
- **CPI Stability:** Retail inflation appears within RBI's 4-6% band, but this masks rising input costs.
- **WPI Surge:** Wholesale inflation jumped sharply from 2.4% in February to 3.88% in March, showing producer-level stress.

Causes of Inflationary Pressure

- **Fuel Prices:** Global crude and gas prices rose due to geopolitical conflict (U.S.-Israeli war on Iran).
- **Rupee Depreciation:** The rupee fell 2.5-3% against the dollar, making imports costlier.
- **Imported Inflation:** Dollar-denominated imports like oil, fertilizers, plastics, and petrochemicals became more expensive.
- **Supply Chain Disruptions:** War-induced shocks reduced exports (down 3-4% YoY) and imports (down 5-6% YoY).
- **Domestic Market Glut:** MSMEs redirected exports to local markets, temporarily suppressing CPI but squeezing margins.

Way Forward

- **Accelerate Renewable Energy & Energy Security:** Reduce dependence on imported fossil fuels by scaling **solar, wind, and green hydrogen** under **PM-KUSUM, National Hydrogen Mission**.
- **Strengthen Rupee & External Stability:** Ensure **fiscal prudence, diversified exports, and currency hedging**.
- **Support MSMEs & Domestic Supply Chains:** Expand **MSME credit schemes, PLI incentives, and MGNREGA** to absorb shocks and maintain competitiveness;
- **Rangarajan Committee on Poverty Estimation** and **ILO studies** underline structural reforms to reduce vulnerability to imported inflation.

Causes of Inflation

- **Demand-Pull Inflation:** When demand for goods exceeds supply (e.g., festive season demand).
- **Cost-Push Inflation:** When production costs rise (e.g., higher fuel prices increase transport costs).
- **Imported Inflation:** When global prices rise, especially for oil, and India has to pay more due to currency depreciation.

How India Calculates Inflation

Consumer Price Index (CPI)

- **Measures:** Price changes at the retail level (what consumers pay).
- **Basket:** Includes food, housing, clothing, fuel, education, healthcare, etc.
- **Base Year:** Updated to **2024**.
- **Use:** CPI is the main measure of **retail inflation** and is closely tracked by the **RBI** for monetary policy.

Wholesale Price Index (WPI)

- **Measures:** Price changes at the wholesale/producer level (first bulk sale).
- **Basket:** Includes manufactured products, fuel, power, and primary articles.
- **Base Year: 2011-12**.
- **Use:** WPI reflects producer-side inflation and input costs.
- **RBI's Target:** Inflation should remain within **4% ± 2% band** (i.e., 2-6%).

Conclusion

India's inflation appears mild but is **deceptively benign**. Rising fuel costs, rupee depreciation, and global disruptions point to hidden stagflationary risks. The situation highlights the urgent need for India to **shift toward renewable energy** to safeguard growth and price stability.

VII. Industry and Industrial Policies

1. INDIA'S LPG CRISIS AND WELFARE ARCHITECTURE

Why in News?

- The war in West Asia in March 2026 disrupted LPG imports through the **Strait of Hormuz**, triggering a nationwide cooking fuel shortage.

LPG and Import Vulnerability

- **PMUY Achievements:** Since 2016, over **10.33 crore LPG connections** were given to women from poor households, doubling national LPG coverage.
- **Shift from Kerosene:** The **Public Distribution System (PDS) kerosene supply** was phased out, leaving households dependent on LPG a commodity tied to global markets beyond direct state control.
- **Import Dependence:** India imports about **60% of its LPG**, with nearly **90% routed through the Strait of Hormuz**, a major chokepoint vulnerable to geopolitical tensions.
- **Absence of LPG Buffer:** While India's **Strategic Petroleum Reserves** cover ~9.5 days of crude oil, there is **no dedicated LPG reserve**, exposing households to supply shocks.

Structural Vulnerabilities

- **Supply vulnerability:** Welfare guarantees depend on uninterrupted imports; disruption leaves households unprotected.
- **Economic burden:** Refill costs exceed subsidies; in March 2026, prices rose by **₹60 per cylinder**, forcing poor families back to biomass.
- **Social inequities:** SC/ST households have **10-30% lower LPG access** due to weak distributor networks in rural areas.
- **Gendered impact:** Women, the formal beneficiaries, bear the burden of reverting to biomass when LPG fails, reversing gains in health and time savings.

Policy Gaps

- **No crisis protocols:** Lack of statutory rules for allocation or triage during disruptions.
- **Misaligned welfare design:** State branding created expectations of sovereign guarantee, but delivery relied on fragile global markets.

Way Forward

- **Create Strategic LPG Buffer Stocks:** Establish reserves that can cover at least **two months of national demand**, similar to crude oil reserves, to ensure supply continuity during global disruptions.
- **Diversify Import Routes and Sources:** Reduce dependence on the **Strait of Hormuz** by sourcing LPG from multiple regions and developing alternative shipping corridors to minimise geopolitical risks.
- **Promote Community Biogas Initiatives:** Scale up programmes like **GOBARdhan**, offering subsidies to revive dormant biogas plants, thereby creating localised and renewable alternatives to LPG.

- **Expand Piped Natural Gas (PNG) Networks:** Accelerate the rollout of PNG infrastructure in **urban and semi-urban areas**, providing households with a reliable substitute and reducing reliance on imported LPG cylinders.

Conclusion

India's LPG crisis shows that welfare expansion focused on **connections delivered**, not **continuity under stress**. Without buffers, diversification, and alternative fuels, clean cooking cannot be guaranteed, making PMUY vulnerable to global shocks.

2. JAN VISHWAS 2.0 AND TRUST-BASED COMPLIANCE

Why in News?

- Parliament has passed the **Jan Vishwas (Amendment of Provisions) Bill, 2026**, which expands decriminalisation of minor business offences and promotes trust-based regulation.

Background of Reform

- **Core Objective:** Replace jail terms for minor violations with **monetary fines, administrative measures, and civil penalties**. Encourage **ease of doing business** and reduce litigation burden.
- **Jan Vishwas Act, 2023:** Decriminalised **183 provisions** across **42 Central Acts** to reduce fear of imprisonment for minor business and compliance lapses.
- **Jan Vishwas 2.0 (2026):** Enlarged scope to **784 provisions amended** across **79 Acts**, shifting focus from criminal punishment to civil penalties.
- **Significance:** Builds investor confidence by making regulatory environment less punitive. Supports **MSMEs and startups** by reducing compliance risks.

Features of Jan Vishwas 2.0

- **Decriminalisation of Minor Lapses:** Focus shifts from jail terms to **civil penalties and fines**.
- **Rationalisation of Laws:** Eliminates outdated and redundant offences across **79 Acts**. Creates a more coherent and simplified regulatory framework.
- **Trust-Based Regulation:** Encourages voluntary compliance rather than fear-driven adherence.
- **First-time or minor violations** may attract **warnings or lower penalties** instead of harsh punishment.
- **Ease of Doing Business:** Reduces litigation burden and compliance risks for **MSMEs and startups**. Builds investor confidence by making regulation predictable and less punitive.

Significance

- **Ease of Doing Business**: Reduces compliance burden, especially for MSMEs.
- **Judicial Relief**: With ~50 million cases pending, shifting minor offences out of criminal courts reduces congestion.
- **Investor Confidence**: Creates predictable and transparent regulatory environment.
- **Economic Efficiency**: Aligns regulation with evolving business realities.

Role of Industry & Stakeholders

- **CII Advocacy:** The **Confederation of Indian Industry (CII)** played a leading role in pushing for reforms to make compliance less punitive and more business-friendly.
- **Shift in Penalties:** Industry groups suggested moving away from **court-imposed fines** to **executive penalties** with clear, transparent rules.

- **Retrospective Coverage:** Stakeholders recommended that reforms apply **retrospectively**, so pending cases could also benefit from decriminalisation.
- **Continuous Consultation:** Regular dialogue between government and industry ensured a **balanced framework**-facilitating ease of business while retaining necessary enforcement.

Way Forward

- **Effective Implementation**: Build institutional capacity for administrative adjudication.
- **Uniform Enforcement**: Ensure consistency across ministries and departments.
- **Clear Guidance**: Provide transparent rules to businesses for compliance.
- **Retrospective Relief**: Review pending minor cases for closure under new framework.

Conclusion

Jan Vishwas 2.0 shifts India's regulatory approach promotes entrepreneurship, and builds investor confidence, with success relying on transparent implementation and stakeholder engagement.

3. ELECTRICITY TRADING IN INDIA AND SHIFT TO MARKET COUPLING

Why in News?

- The **Central Electricity Regulatory Commission (CERC)** has proposed new rules to introduce **market coupling** in India's electricity trading system.

Background

- Traditionally, electricity in India was traded through **long-term Power Purchase Agreements (PPAs)** between generators and distribution companies (DISCOMs).
- With rising demand fluctuations, **short-term markets** emerged via power exchanges, allowing surplus electricity to be sold at market-driven prices.
- Currently, multiple exchanges (like IEX, PXIL, HPX) discover prices separately, leading to **price disparities**.

Market Coupling Proposal

- **Concept:** Market coupling means aggregating buy and sell bids from all exchanges to determine a **single, uniform Market Clearing Price (MCP)**.
- **Operator:** The **Grid Controller of India (Grid India)** will act as the **Market Coupling Operator (MCO)**.
- **Procedure:**
  - Exchanges collect bids in a standard format.
  - Bids are transmitted securely to the MCO.
  - MCO applies a central algorithm to maximize economic surplus (benefits for buyers and sellers).
- **Phased Rollout:** Initially applied to the **Day-Ahead Market (DAM)** and **Real-Time Market (RTM)**, later extended to other segments.

Objectives of Market Coupling

- **Uniform Price Discovery:** Ensures a **single clearing price** across all power exchanges (currently India has 3 major exchanges - IEX, PXIL, HPX).
- **Reduce Regional Price Gaps:** Helps minimise **price differences across states/regions**, improving fairness in electricity trade.
- **Benchmark Price for Policy:** Provides a **reference price** for regulators and policymakers to design tariffs and subsidies.

- **Efficiency & Transparency:** Enhances **market stability and efficiency**, reducing volatility in India's **power market worth ~₹60,000 crore annually**.

Role of Grid India

- **Dedicated Cell:** Establish an **internal unit** to oversee market coupling operations.
- **Draft PMCP:** Prepare a **Power Market Coupling Procedure (PMCP)** within **6 months**, defining roles, bid formats, and algorithms.
- **Centralised Price Discovery:** Supervise **uniform price determination** until full implementation.
- **Market Oversight:** Monitor compliance and ensure smooth transition in India's electricity market, which trades **~6-7 billion units monthly**.

Challenges

- **Insider Trading Allegations:** SEBI flagged irregularities, including leaks involving a CERC official.
- **Industry Opposition:** IEX opposed market coupling, fearing loss of competitive advantage under uniform pricing.
- **Legal Uncertainty:** Concerns about regulatory overreach and impact on exchange autonomy.

Way forward

- Moves India toward a **centralized, transparent electricity market**.
- Provides a **reliable benchmark price** for policy and investment decisions.
- Enhances **grid efficiency** and supports integration of renewable energy.
- Aligns India's power market with **global best practices** in electricity trading.

Current Market Structure

- **Long-Term Contracts:** PPAs (often 25 years) between generators and DISCOMs.
- **Short-Term Markets:**
  - **Day-Ahead Market (DAM):** Auctions for next-day delivery.
  - **Real-Time Market (RTM):** Near-instant trading for balancing demand.
  - **Intraday & Term-Ahead Markets (TAM):** Contracts ranging from hours to 11 days.
- **Key Players:**
  - **India Energy Exchange (IEX): Dominant, >90% DAM share.**
  - **Power Exchange India Ltd (PXIL).**
  - **Hindustan Power Exchange (HPX).**

Growth of Short-Term Markets

- Short-term transactions grew from **65.9 BU (2009-10)** to **238.35 BU (2024-25)**.
- CAGR: **8.9%** for short-term vs **5.8%** for total generation.
- Share of short-term trading in total generation rose from **9.6% to 13.03%**.

Conclusion

While opposition from dominant exchanges and legal challenges remain, the reform could significantly strengthen India's electricity sector and support its transition to a more competitive, renewable-driven energy future.

VIII. Trade and External sector

1. EXPORTERS PUSH TO REVIVE RICE-FOR-OIL BARTER WITH IRAN

Why in News?

- Punjab exporters have urged the Centre to revive an **oil-for-rice barter with Iran** to ease stranded basmati shipments as several US sanctions waivers on oil and Chabahar approach expiry in April 2026.

Oil-for-Rice Barter with Iran

- The Centre acknowledged it is **buying oil and LNG from Iran after a seven-year gap**, prompting exporters to press for renewed trade ties.
- Several **US sanctions waivers** (for Russian oil, Iranian oil and India's Chabahar stake) are set to expire in April 2026, raising urgency.
- This proposal seeks use of the **Rupee payment mechanism** and barter to bypass payment and transit disruptions.

Basmati Exports, Sanctions

- **Basmati exports:** Over **80%** of India's basmati goes to West Asia; many consignments are **stuck in transit**, causing losses.
- **Sanctions timeline:** US waivers for Russian oil and Iranian oil and the Chabahar port concession **expire in April 2026**, constraining trade options.
- **Rupee mechanism:** A **rupee-based payment corridor** (corpus at UCO Bank) exists from 2012 and could be used for commodity settlements.

What exporters want

- **Barter deal:** Exchange **Indian rice (basmati)** for **Iranian crude oil** to bypass hard-currency and shipping bottlenecks.
- **Use rupee corridor:** Settle transactions through the **Rupee payment mechanism** to avoid dollar-based sanctions exposure.
- **Relief measures:** Seek interest relief and diplomatic support to clear **stranded consignments** and revive traditional trade links.

Challenges

- **Energy security:** A barter could **ease crude shortages** and reduce import bills if logistics and pricing align.
- **Sanctions risk:** Any deal must navigate **US sanctions and waivers**; diplomatic engagement with Washington is ongoing.
- **Commercial feasibility:** Refiners cite **high prices, limited availability and refinery adjustments** as constraints on large-scale Iranian crude uptake.
- **Trade logistics:** Clearing **stranded rice consignments** requires shipping, insurance and port-security solutions amid regional instability.

Way Forward

- **Strengthen Rupee Payment Mechanism:** Revive and expand the rupee-based settlement corridor (UCO Bank corpus) to bypass dollar-denominated sanctions exposure.
- **Diversify Trade Channels:** Use barter arrangements (rice for oil) selectively while also exploring regional partners and alternate shipping routes to reduce dependence on a single corridor.
- **Diplomatic Engagement:** Intensify talks with the U.S. to secure waivers for Iranian oil and Chabahar port, while balancing strategic autonomy in energy and trade policy.

- **Support Exporters:** Provide interest relief, insurance cover, and logistical assistance to clear stranded basmati consignments and protect farmer incomes.

Conclusion:
A rice-for-oil barter with Iran could offer short-term relief to exporters and energy buyers, but it faces **legal, diplomatic and logistical hurdles** tied to US sanctions and commercial viability.

B. ENVIRONMENT

I. Biodiversity and conservation

1. HOW ENERGY EFFICIENCY DRIVES ELEVATIONAL BIRD MIGRATION

Why in News?

- A new global study published in ***Science Advances*** **shows** mountain birds move seasonally mainly to optimise energy use, not simply to follow cooler temperatures.

Background

- **Elevational migration:** Many bird species move up and down mountains seasonally rather than making long-distance migrations.
- **Old idea:** It was widely believed birds moved mainly to track cooler temperatures.
- **New focus:** Researchers tested whether food availability, competition and energy costs explain these movements better.

Study and methods

- **Data used:** Seasonal records for **10,998 populations** across **2,684 species** from **34 mountain regions** worldwide (citizen science sources).
- **Model:** The team adapted the **Seasonally Explicit Distributions Simulator SEDS** to simulate how birds would distribute themselves if they optimised energy use.
- **Assumption:** Resource availability was proxied by vegetation greenness, which indicates food energy in the ecosystem.

Key findings

- **Energy drives movement:** Birds move mainly to access food, avoid competition and reduce thermoregulation costs.
- **Upslope in winter:** Many species move upslope in winter, going against the simple temperature gradient.
- **Model match:** Simulated seasonal distributions matched real patterns on **28 of 34** mountain slopes, supporting the energy-efficiency explanation.
- **Climate change effect:** Under worst-case climate scenarios to 2100, the model predicts an average upslope shift of about **129 metres** for mountain birds.

Energy efficiency hypothesis explained

- **Energy budget concept:** Birds balance energy spent on staying warm, finding food, avoiding predators and breeding.
- **Resource distribution matters:** Seasonal changes in insect and fruit abundance at different elevations explain many movements better than temperature alone.

- **Competition effect:** As more species use the same zone, some shift elevation to reduce competition and access food.

Implications for conservation and management

- **Habitat focus:** Protecting and restoring food resources across elevations is crucial, not only preserving cooler zones.
- **Land-use planning:** Agricultural change and deforestation that alter resource patterns can disrupt migration and local populations.
- **Monitoring:** Use remote sensing and field surveys to map seasonal food availability for targeted action.

Policy recommendations

- **Integrate resource maps** into protected area planning and corridor design.
- **Support citizen science** for continuous monitoring of seasonal bird distributions.
- **Prioritise research** on species groups (frugivores, insectivores) to identify vulnerable guilds.

Conclusion:
Seasonal mountain bird movements are best explained by access to food and competition rather than temperature tracking. Conservation must therefore protect resource availability across elevations to sustain mountain bird communities.

II. Environmental pollution

1. CLIMATE CHANGE AS A PUBLIC HEALTH EMERGENCY

Why in News?

- Experts warn that climate change is no longer only an environmental or economic problem but a growing medical crisis that worsens existing illnesses and creates new health threats.

Climate Change and Health

- **Core idea:** Climate change worsens health by altering weather, water supply, air quality and ecosystems, increasing infectious, non-communicable and nutritional risks.
- **Scope of impacts:** Includes waterborne diseases, vector-borne infections, heat-related illness, air-pollution morbidity, maternal-child risks and threats to food security across urban and rural areas.
- **Global scale indicator:** Annual mean global surface temperature reached about **1.45°C above pre-industrial levels (2023)**, driving record heat exposure.
- **Heat burden in India:** In 2024, Indians faced **~20 heatwave days on average**, with **~6.5 days attributable to climate change**, worsening heat-related illness.

Water and infectious diseases

- **Urban flooding:** Increased heavy rains and waterlogging overwhelm sanitation systems, contaminating drinking water and raising cases of cholera, typhoid, hepatitis A and leptospirosis.
- **Drought impacts:** Water scarcity forces reliance on unsafe sources, increasing diarrhoeal illnesses and chronic dehydration.
- **Sanitation strain:** Repeated flooding damages infrastructure and heightens exposure to waterborne pathogens.

Vector and seasonal disease shifts

- **Longer transmission windows:** Warmer, wetter conditions extend breeding seasons for mosquitoes and other vectors, expanding disease seasons.
- **Geographic spread:** Diseases like dengue and malaria are appearing in regions previously too cool for sustained transmission.
- **Example pattern change:** Peak dengue months are shifting later in the year as favourable conditions persist longer.

Air pollution and noncommunicable diseases

- **Heat and energy feedback:** Greater use of cooling increases emissions; higher temperatures also worsen air quality.
- **Health effects of PM2.5:** Fine particles inflame lungs, worsen asthma and COPD, and raise risks of heart attacks, strokes and kidney damage.
- **Heat stress:** High daytime and night-time temperatures increase cardiovascular strain, especially for outdoor workers, raising heat-stroke deaths.

Maternal, child and nutritional impacts

- **Pregnancy risks:** Extreme heat and pollution are linked to preterm births and low birth weight.
- **Food security:** Crop disruptions and lower nutritional quality from extreme weather lead to micronutrient deficiencies and chronic malnutrition.
- **Livestock stress:** Heat reduces milk yields, affecting child nutrition in vulnerable households.

Challenges

- **Unequal burden:** Poor, marginalised and outdoor workers face the greatest exposure and least access to care.
- **Health system readiness:** Many regions lack surveillance, diagnostics and surge capacity to respond to shifting disease patterns.
- **New risks:** Populations without prior exposure lack immunity, increasing outbreak severity.

Policy and health system responses

- **Treat climate as a health emergency:** Integrate climate risks into public-health planning and emergency preparedness.
- **Strengthen surveillance:** Expand vector and disease monitoring, and use early-warning systems.
- **Protect vulnerable groups:** Improve access to clean water, cooling shelters, and occupational safeguards for outdoor workers.
- **Reduce emissions and pollution:** Promote clean energy and urban planning that lowers heat islands and air pollution.
- **Nutrition and resilience:** Support climate-resilient agriculture and social safety nets to protect food security.

Conclusion:
Recognising Climate change it as a public-health emergency is essential to mobilise health systems, protect vulnerable populations for better health outcomes.

III. Renewable Energy

1. INDIA'S BATTERY STORAGE CHALLENGE

Why in News?

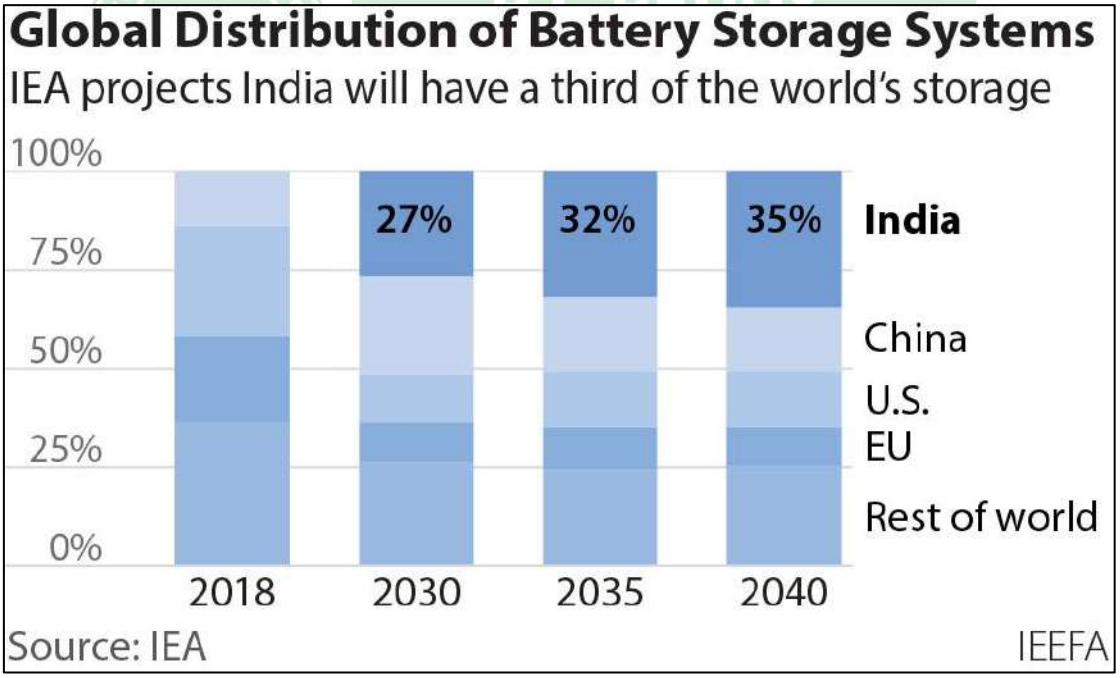
- India recently updated its **Nationally Determined Contributions (NDCs) for 2035**, experts warn that without **battery storage and grid infrastructure**, India cannot fully utilise its renewable capacity.

India's Updated NDCs (2035)

- **60% installed capacity** from non-fossil sources.
- **47% reduction** in emission intensity per unit of GDP.
- **3.5-4 billion tonne CO2 carbon sink** through forests and tree cover.
- Net-zero target by **2070**.

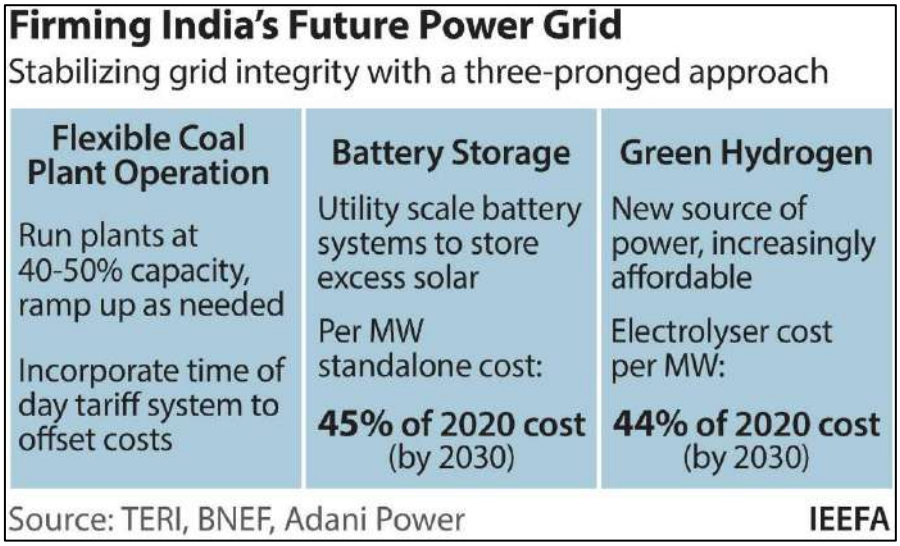
Background

- **Paris Agreement (2015)**: Global pact to limit warming below 2°C; requires updated NDCs every 5 years.
- **India's Emissions Profile**: Contributes ~7% of global emissions. Per capita emissions: ~2 tonnes CO2 (below world average of ~4.7 tonnes).
- **Renewable Potential**: India has >750 GW solar potential and ~300 GW wind potential.
- **Battery Storage**: Global benchmark - China leads with >100 GW storage capacity; India lags at <10 GW.



Challenges

- **Battery Storage Deficit**: Solar and wind power remain underutilised due to lack of storage.
- **Grid Limitations**: Transmission and distribution networks are outdated.
- **Dependence on Fossil Fuels**: Global conflicts (e.g., West Asia war) show vulnerability to fossil fuel supply shocks.
- **Financial Constraints**: High cost of large-scale battery deployment.



Way Forward

- **Expand Battery Storage**: Invest in lithium-ion, flow batteries, and indigenous alternatives.
- **Grid Modernisation**: Smart grids and flexible transmission systems to integrate renewables.
- **Policy Push**: Long-term contracts, subsidies for storage, and private sector participation.
- **Carbon Capture & Utilisation**: Scale up CCUS technologies to complement renewables.
- **Forestry & Carbon Sink**: Strengthen afforestation to meet carbon sink targets.

India's three best initiatives on renewable energy

- **National Energy Storage Mission (NESM):** Promotes large-scale deployment of advanced battery technologies for grid and mobility.
- **PLI Scheme for Advanced Chemistry Cells (ACC):** ₹18,100 crore program to build 50 GWh domestic battery manufacturing capacity.
- **Green Energy Corridor Projects:** Strengthen transmission networks and smart grids to integrate solar and wind power efficiently.

Conclusion

India's updated NDCs tick the right boxes on paper, but **real progress depends on storage and grid reforms**. Without urgent action, renewable capacity will remain underutilised, undermining India's climate leadership.

IV. Global Warming and Climate Change

1. SCALING CLIMATE ADAPTATION FROM POLICY TO GRASSROOTS

Why in News?

- A recent **UNEP Adaptation Gap Report (2025)** flagged a global financing gap **annually**, stressing the need for grassroots climate resilience.

India's Climate Vulnerability

- India is the **9th most climate-vulnerable country globally**.
- Recorded **430 extreme weather events (1995-2024)**.
- Losses: **$170 billion**, affecting **1.3 billion people**.
- Adaptation and resilience spending estimated at **5.6% of GDP in FY22**.

National Commitments

- India's **Updated NDCs (2031-35):** Strengthen adaptation in **coastal resilience, infrastructure, disaster preparedness, heat mitigation, biodiversity, and livelihoods**.
- Linked to global goals: **Triple adaptation finance by 2035**. Adoption of **Belém Adaptation Indicators at COP30**.

Adaptation Models

- **NICRA (National Innovations in Climate Resilient Agriculture):**
  - ICAR pilot in **448 villages across 151 hotspots**.
  - Risk mapping in **651 districts**.
  - Focus: Climate-smart agriculture and farmer training.
- **Tamil Nadu CRV Programme:**
  - Covers **11 vulnerable districts** under TN Climate Change Mission.
  - Supported by **WRI India**.
  - Interventions: Water management, flood/drought mitigation, renewable energy, biodiversity, alternate livelihoods, climate information.

Financing Challenges

- Global adaptation finance gap: **$284-339 billion annually (UNEP, 2025)**.
- India's **Draft Climate Finance Taxonomy (2025)** remains mitigation-focused.
- Need for **clear typology of adaptation finance** to prioritise vulnerable sectors.
- WRI study: **10-fold return on adaptation investment** → case for private and international funding.

Policy Recommendations

- **Domestic Resource Mobilisation:** Track adaptation spending in State budgets; mandate climate budgeting via Finance Ministry.
- **Institutionalisation:** Regular vulnerability assessments at State, district, block levels.
- **Capacity Building:** Strengthen climate cells at State/district levels with dedicated workforce.
- **Locally Led Adaptation (LLA):** Empower panchayats and urban local bodies; co-develop resilience plans with communities.
- **Beyond Infrastructure:** Include skill development, alternative livelihoods, and rehabilitation guidelines.

Conclusion

Financing adaptation, institutionalising planning, and empowering local bodies are essential to ensure that **national commitments translate into real protection for vulnerable populations.**

V. Indian Initiatives, efforts and Commitments

1. INDIA'S UPDATED CLIMATE PLEDGES

Why in News?

- India has announced **revised Nationally Determined Contributions (NDCs)** under the Paris Agreement, updating its climate targets while balancing developmental needs.

Nationally Determined Contributions (NDCs)

- **Definition & Framework:** NDCs are **voluntary climate action pledges** made by countries under the **Paris Agreement (2015)**, outlining emission reduction and adaptation goals.

- **India's Approach:** India emphasizes **continuity with incremental progress**, aligning commitments with **climate justice** and its status as a **developing nation**.
- **Structural Constraints:** As a **lower middle-income country**, India balances climate goals with development needs - energy security, poverty reduction, and industrial growth.
- **Global Context:** NDCs form the backbone of the **UNFCCC climate regime**, with progress tracked through **Global Stocktake (GST)** every five years.

Developmental Context

- **Coal Dependence:** India's energy base is still **~55% coal (CEA 2025)**, making emission cuts costly and politically sensitive.
- **Renewable Expansion Needs:** Scaling solar/wind requires **battery storage (estimated 27 GW by 2030)** and stronger transmission under **Green Energy Corridor project**.
- **Hydropower Limits:** Expansion faces **environmental clearance delays** and **rehabilitation challenges**; large dams like **Subansiri Lower Project** stalled for years.
- **Transition Costs:** Higher maintenance for thermal plants and leap-frogging to **EVs, BSVI standards** adds economic burden; **NITI Aayog EV roadmap** estimates ₹19 lakh crore investment by 2030.

Global Debate

- **Criticism of Targets:** Some argue India's pledges are "too easy" and insufficient for the **1.5°C goal (IPCC reports)**.
- **Installed vs Actual Generation:** Critics demand focus on **actual renewable generation**, not just installed capacity.
- **India's Counter:** Per capita emissions are **~1.9 tonnes CO_2 vs global average ~5.5 tonnes (IEA 2024)**; India insists on **climate justice** and recognition of **historical responsibility of big emitters**.

Cost of Going Green

- **Massive Investment Needs:** Scaling renewables + storage could cost **trillions of rupees (IEA India Energy Outlook 2025)**.

- **Fiscal Trade-offs:** Diverting resources to climate action may affect **poverty reduction, health, and education spending**.
- **Climate Finance Gap:** Developed nations pledged **$100 billion annually (Paris Agreement)**, but actual flows remain below target, adding to India's burden.

Challenges

- **Energy Security vs Climate Goals:** Heavy reliance on coal and imported oil/gas.
- **Finance Deficit:** Inadequate global climate finance and limited domestic fiscal space.
- **Technology Barriers:** High cost of EVs, hydrogen, and storage solutions.
- **Institutional Delays:** Regulatory bottlenecks in clearances and project execution.

Way Forward

- **Diversify Energy Mix:** Accelerate **National Hydrogen Mission, PM-KUSUM, International Solar Alliance** to reduce fossil dependence.
- **Mobilise Finance:** Expand **Green Bonds, PPP models, sovereign guarantees**; leverage **NITI Aayog's financing frameworks**.
- **Technology Push:** Invest in **SMRs, thorium reactors, battery R&D** through **BARC and DAE**.
- **Strengthen Institutions:** Empower **AERB** and streamline clearances under **Environment Ministry** for faster project execution.
- **Global Diplomacy:** Push for **equity and differentiated responsibility** in climate negotiations; demand fair share of climate finance.

India's Initiatives

- **National Action Plan on Climate Change (NAPCC)**: missions on solar, energy efficiency, sustainable agriculture.
- **National Hydrogen Mission (2021)**: target of 5 MMT green hydrogen by 2030.
- **PM-KUSUM Scheme**: solar pumps and decentralised renewable energy for farmers.
- **Perform, Achieve, Trade (PAT) Scheme**: energy efficiency in industries.
- **National Electric Mobility Mission Plan (NEMMP)**: EV adoption roadmap.
- **International Solar Alliance (ISA)**: global leadership in solar energy diplomacy.

Conclusion

India's updated pledges show cautious progress, prioritising **sustainable growth without compromising development goals**. The challenge ahead lies in mobilising resources and technology to meet commitments while ensuring fairness in global climate responsibility.

C. DISASTER MANAGEMENT

I. Disasters and their management

1. COUNTING PEOPLE IS NOT COUNTING DISASTER RISK

Why in News?

- Odisha, despite being India's most cyclone-prone State with strong disaster preparedness, has seen the **largest cut in disaster funding share** under the 16th Finance Commission.

Odisha's Achievements in Disaster Management

- **Early Warning Systems:** Advanced cyclone forecasting and communication networks have drastically reduced casualties.
- **Cyclone Shelters:** Hundreds of multi-purpose shelters built along the 574 km coastline.
- **Mass Evacuations:** Well-coordinated evacuation drills have brought cyclone-related deaths close to zero.
- **Global Recognition:** Odisha is often cited as a model State in disaster risk reduction by UN agencies.

Finance Commission's Allocation Issue

- **Funding Reduction:** The 16th Finance Commission cut Odisha's disaster fund share by **1.57 percentage points**, the steepest decline among all States.
- **Contradiction:** Despite being India's most cyclone-prone State, Odisha faces reduced support.
- **Formula Flaw:** Allocation based on **total population size** rather than hazard-zone population, disadvantaging smaller but high-risk States.

Issues with the New Formula

- **Multiplicative DRI (Hazard × Exposure × Vulnerability):** Adopted instead of the earlier additive model.
- **Exposure Miscalculated:** Based on **total population** of a State, not hazard-zone population.
  - Example: Odisha's hazard score is highest (12), but its population score is low (5), reducing its DRI.
  - Larger States like UP and Bihar get higher scores despite lower hazard intensity.
- **Vulnerability Misinterpreted:** Measured only by **per capita NSDP (income)**.
  - Ignores factors like housing quality, health infrastructure, and inequality.
  - Kerala's 2018 floods caused ₹31,000 crore damage, yet its vulnerability score is low due to higher average income.

Institutional Framework

State Disaster Response Fund (SDRF): Established under the Disaster Management Act, 2005; financed by the Centre and States.

- **Finance Commission Role:** Determines SDRF allocations every five years.
- **Disaster Risk Index (DRI):** Current formula = Hazard × Exposure × Vulnerability.

Consequences

- States with **high hazard exposure but smaller populations** (Odisha, Kerala, Assam, Andhra Pradesh) lose funding.
- Formula indirectly **rewards demographic size**, not actual disaster risk.
- Could undermine India's **climate adaptation and disaster resilience**, especially as extreme events intensify.

Way Forward

- **Exposure Measurement:** Use hazard-zone population (cyclone belts, flood plains, earthquake zones) instead of total population.
- **Composite Vulnerability Index:** Include housing type, health facilities, crop insurance, and warning systems.
- **Data Sources:** NFHS-5, PMFBY, NHM surveys, IMD records, and BMTPC Vulnerability Atlas.
- **Institutional Reform:** NDMA should publish an **annual State Disaster Vulnerability Index** for Finance Commission use.

Conclusion

Without correcting the formula, India risks underfunding its most vulnerable States at a time when **climate change is intensifying hazards**.

D. SCIENCE AND TECHNOLOGY

I. Achievements of Indians in Science & Technology

1. THE SHANTI ACT (2025) AND INDIA'S NUCLEAR PRIVATE PARTICIPATION

Why in News?

- Finance Minister announced a target of 100 GW nuclear capacity by 2047 and Parliament passed the SHANTI Act in December 2025.

What the SHANTI Act changes

- **Consolidation of laws:** The Act repeals the **Atomic Energy Act (1962)** and the **Civil Liability for Nuclear Damage Act (2010)** and creates a single modern statute for nuclear energy.
- **Private and foreign entry: Limited private ownership and operation** of civilian nuclear plants is permitted under strict licensing and oversight.
- **Regulatory upgrade:** The **Atomic Energy Regulatory Board (AERB)** is given statutory backing to function as an autonomous safety regulator.
- **Liability and insurance:** The Act revises the liability framework to make projects more attractive to investors while addressing compensation and insurance norms.

Why nuclear is central to India's goals

- **Energy and development:** To reach **Viksit Bharat** and higher per-capita electricity use, India needs large, reliable baseload power beyond intermittent renewables.
- **Net-zero target:** Nuclear is a **low-carbon baseload** option that complements renewables and helps meet long-term decarbonisation goals.
- **Land and storage constraints:** Renewables require large land and storage investments; nuclear offers high energy density and continuous output.

Implementation challenges

- **Huge capital need:** Adding tens of GW will require **hundreds of billions of dollars**; private and foreign finance is essential.
- **Technology choices:** Imported large reactors (e.g., French, US designs) must be indigenised to cut costs; Small Modular Reactors (SMRs) are being pursued for flexibility.
- **Regulatory clarity:** Rules on **fuel ownership, waste management, tariffs, liability, and dispute resolution** must be transparent and investor-friendly.
- **Public acceptance and safety:** Site clearances, exclusion zones and community consent will be politically sensitive.

Policy Priorities

- **Fast-Track Rulemaking:** Ensure regulatory clarity by balancing **safety standards** with **investor certainty**, as emphasized in **Atomic Energy Regulatory Board (AERB)** guidelines.
- **Innovative Financing:** Mobilize resources through **Public-Private Partnerships (PPP)** and **long-term sovereign guarantees**, aligned with **NITI Aayog's infrastructure financing reports**.
- **R&D Push:** Invest in **Small Modular Reactors (SMRs), thorium fuel cycles, and HALEU technologies**, supported by **Department of Atomic Energy (DAE)** and **Bhabha Atomic Research Centre (BARC)** initiatives.
- **Transparent Regulation:** Strengthen the **Atomic Energy Regulatory Board (AERB)** with statutory backing, ensuring clear licensing, liability regimes, and investor confidence.

Way Forward

- **Clear Regulatory Framework:** Finalise transparent rules on fuel ownership, tariffs, liability, and dispute resolution to give investors confidence while ensuring public safety.
- **Innovative Financing Models:** Mobilise capital through **public-private partnerships, sovereign guarantees, and green bonds** to meet the huge investment needs for nuclear expansion.
- **Technology Strategy:** Accelerate **indigenisation** of imported reactor designs to reduce costs.
- **Push R&D in Small Modular Reactors (SMRs)**, thorium fuel cycles, and advanced HALEU fuels for flexibility and sustainability.
- **Strengthen Safety & Public Trust:** Empower the AERB as an independent regulator, ensure strict site clearances, and build community consent through transparent communication and benefit-sharing.

Conclusion:
The SHANTI Act creates the legal scaffolding for a major expansion of nuclear power in India, but its success depends on prompt, clear rules, large-scale financing, technology strategy and robust safety governance.

2. GAGANYAAN MISSION AND SAFE RETURN OF ASTRONAUTS

Why in News?

- India's upcoming **Gaganyaan human spaceflight mission** has raised concerns about astronaut safety during re-entry.

What Re-entry Means

- **Definition:** Re-entry is the process when a spacecraft or crew module returns from orbit and enters Earth's atmosphere.
- **Speed Context:** The module travels at very high orbital speeds (~7,800 m/s).
- **Atmospheric Drag:** As it plunges into the atmosphere, **air resistance (aerobraking)** slows it down by converting kinetic energy into heat.
- **Heat Shield Role:** Special heat shields protect the spacecraft from the intense frictional heating during this phase.

Impact of Re-entry

- **Speed Reduction:** Atmospheric drag removes most of the speed before parachutes deploy.
- **Controlled Descent:** Ensures the module slows enough for safe parachute operation and eventual splashdown.
- **Thermal Stress:** Generates extreme heat (thousands of °C), requiring advanced materials to protect astronauts.
- **Trajectory Sensitivity:** Small variations in angle or speed can cause overshoot, undershoot, or dangerous heating.

Role of Parachutes

- A **multi-stage parachute system** deploys below ~12 km altitude to slow down the crew module.
- Parachutes alone cannot reduce speed to the very low levels needed for safe land touchdown (1-2 m/s).
- **Sea landings** are preferred because water absorbs impact energy, allowing tolerable speeds of 7-9 m/s.
- Using extremely large parachutes would be **impractical** due to weight, storage volume, and risk of tangling.

Landing Zone Characteristics

- The landing footprint is **elliptical**, not a pinpoint location.
- During hypersonic re-entry, atmospheric variations cause **overshoot or undershoot** in distance.
- Lateral deviations (sideways drift) are small, but **along-track errors** can extend hundreds of kilometres.
- This makes **sea splashdown zones more practical**, as they provide wide margins for error.

Sea Recovery Process

- The **Bay of Bengal** has been chosen as the splashdown site for Gaganyaan.
- After splashdown: Parachutes detach automatically to avoid entanglement. **Flotation bags** inflate to keep the module stable on water.
- The crew module emits **GPS signals, homing beacons, fluorescent dye markers, and strobe lights** for easy detection.
- Painted in **international orange** for high visibility against sea water.
- Recovery ships and helicopters will track signals and reach the site quickly to secure astronauts.

Additional Dimensions

- **Crew Safety:** Special seating and shock-absorbing structures inside the module protect astronauts during splashdown.
- **Global Practice:** NASA's Apollo and SpaceX Crew Dragon also use sea landings, showing India's approach aligns with international standards.
- **Training:** Indian Navy divers are being trained for rapid recovery operations, including medical support immediately after retrieval.
- **Redundancy:** Multiple tracking systems (satellite, radar, beacon) ensure the module is never "lost" even in rough seas.

Role of the Indian Navy in Gaganyaan

- **Lead Recovery Agency:** The **Indian Navy** will spearhead the recovery operations, supported by Coast Guard, Air Force, and other agencies.
- **Diver Operations:** Specially trained Navy divers will approach the crew module after splashdown, securing it with **flotation collars and towing gear** to stabilise it in the sea.
- **Module Retrieval:** The crew module will be **winched onto the deck of recovery ships**, ensuring safe handling and extraction of astronauts.
- **Safety & Medical Support:** Navy teams will provide **immediate medical checks and emergency care** to astronauts post-recovery.

Conclusion

The Gaganyaan mission's safe return strategy ensures astronauts land securely, marking a crucial step in India's human spaceflight capability.

II. Indigenization of Technology and Developing New Technology.

1. FAST BREEDER REACTOR AND CRITICALITY

Why in News?

- India's **500 MWe Prototype Fast Breeder Reactor (PFBR)** at Kalpakkam, Tamil Nadu, has achieved **criticality**.

Fast Breeder Reactor (FBR)

- **Produce More Fuel Than They Use:** Unlike normal reactors, FBRs generate extra fissile material while producing electricity. That's why they are called "breeders."
- **How They Work:** They use **fast neutrons** (high-energy particles) instead of slow ones. These fast neutrons can convert ordinary uranium (U-238, which is not directly usable) into plutonium (Pu-239, which is usable fuel).
- **Fuel Used:** A mix called **Mixed Oxide (MOX)** fuel → made of plutonium and uranium.

- **Why Important for India:** India has **limited uranium** but **abundant thorium**. FBRs help India stretch its uranium resources and prepare for the next stage of using thorium.

Significance of FBRs

- **Better Fuel Efficiency:** FBRs generate more usable fuel than they consume, maximising energy output from limited uranium resources.
- **Reduce Nuclear Waste:** They utilise materials (like uranium-238) that would otherwise remain unused, thereby cutting down long-term radioactive waste.
- **Enable Thorium Use:** FBRs can convert thorium into uranium-233, paving the way for India's third stage nuclear programme focused on thorium reactors.
- **Energy Security:** By stretching uranium supplies and preparing for thorium use, FBRs strengthen India's long-term energy independence and reduce reliance on imported uranium.

Criticality in Nuclear Reactors

- **Meaning of Criticality:** Criticality means the reactor has achieved a **self-sustaining chain reaction** where neutrons released from fission cause further fission events continuously.
- **States of Criticality:**
  - **Subcritical:** Reaction dies out because not enough neutrons continue the chain.
  - **Critical:** Reaction is stable and self-sustaining, producing steady energy.
  - **Supercritical:** Reaction grows rapidly, producing more neutrons than needed, which can be dangerous if uncontrolled.
- **Why It Matters:**
  - Achieving controlled criticality is a **key milestone** when starting a reactor.
  - It ensures the reactor can safely generate power without the reaction dying out or running away.

Challenges of PFBR

- **Sodium Coolant Risks:** PFBR uses **liquid sodium coolant** - efficient for heat transfer but highly reactive with air and water, requiring **strict safety protocols**.
- **High Costs & Complex Engineering:** FBRs involve advanced materials and design; construction and maintenance costs are significantly higher than conventional reactors.
- **Risk of Leaks & Accidents:** Example: Japan's **Monju reactor** was shut down after a **sodium fire in 1995**, highlighting operational hazards.
- **Global Experience:** France's **Superphénix reactor** closed due to technical failures and political opposition, showing long-term sustainability challenges.

India's Three-Stage Nuclear Programme

Stage 1 - Pressurised Heavy Water Reactors (PHWRs):

- Use **natural uranium** as fuel and **heavy water** as moderator.
- These reactors generate electricity and produce **plutonium** as a by-product.
- Purpose: Create the fissile material (plutonium) needed for the next stage.

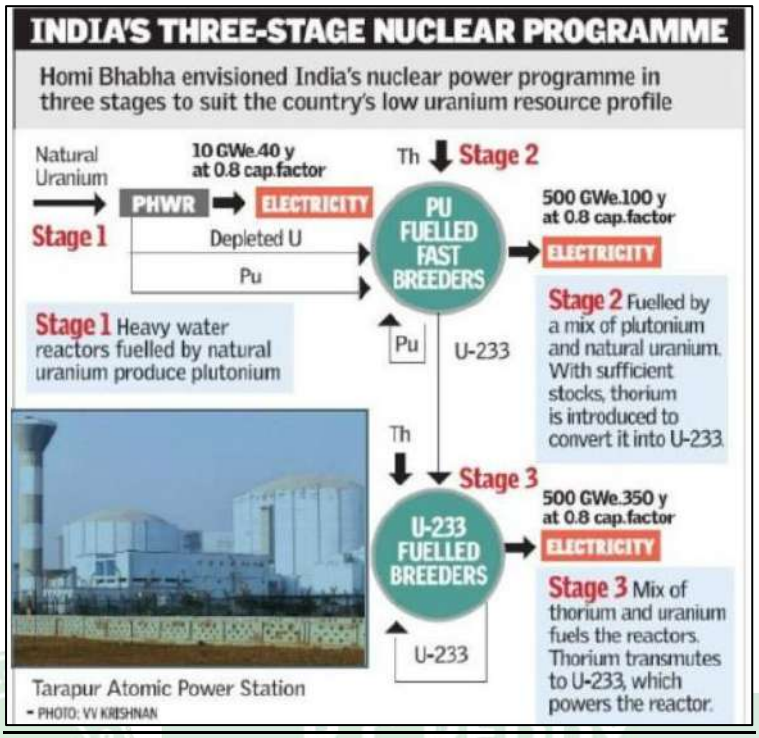
Stage 2 - Fast Breeder Reactors (FBRs / PFBR):

- Use **plutonium mixed with uranium-238 (MOX fuel)**.
- Designed to **produce more fissile material than they consume** ("breeding").
- Convert uranium-238 into plutonium-239, thereby multiplying fuel resources.
- Purpose: Stretch India's limited uranium reserves and prepare for thorium use.

Stage 3 - Thorium-Based Reactors:

- Use **thorium-232**, which is abundant in India.

- Thorium is converted into **uranium-233**, a fissile material that can sustain chain reactions.
- Purpose: Achieve long-term, sustainable nuclear energy with indigenous thorium.



Conclusion

The PFBR's strengthens India's path toward a **closed nuclear fuel cycle**, enhances **energy independence**, and lays the foundation for a **thorium-based future**.

2. ARTEMIS II LAUNCH AND STRATEGIC EDGE OVER CHINA

Why in News?

- **NASA launched Artemis II in early April 2026** to test crewed deep-space systems and gather data needed for future lunar landings.

Artemis II

- **First Crewed Lunar Flyby Since Apollo:** Marks NASA's return to deep-space human missions after 50+ years, testing Orion spacecraft systems around the Moon.
- **International Crew Representation:** Includes astronauts from the U.S. and Canada, symbolising global cooperation in space exploration.
- **Technology Validation:** Successfully tested the Space Launch System (SLS) and Orion's life-support, propulsion, and communication systems for future lunar landings.

Program Changes and Timeline

- **Milestone reset:** NASA revised Artemis sequencing , Artemis II is a crewed flyby; Artemis III will test lunar lander docking in Earth orbit; Artemis IV aims for the first 21st-century lunar surface landing (current target 2028).
- **Gateway cancelled:** Elements of the cancelled Lunar Gateway are being repurposed for lunar surface infrastructure.

Geopolitical Importance of Lunar Missions

- **Strategic Competition (China vs US):** China's rapid progress in crewed and robotic lunar missions challenges U.S. leadership; success or delay in Artemis will shape global influence in space governance.
- **Resource Race (Water Ice at South Pole):** Control over lunar water ice is critical for future fuel, habitation, and scientific bases; early infrastructure could decide who sets the rules for resource extraction.
- **Technological & Norm-Setting Power:** Nations leading in lunar exploration will define **international norms, standards, and legal frameworks** for space resource use, impacting global space law.
- **Security & Strategic Dimension:** Lunar bases can serve dual roles-scientific and military-making space exploration a matter of **national security and geopolitical leverage**.

Risks and Consequences

- **Technical delays or failures** could push back lunar landing timelines, raise costs, and weaken partner confidence.
- **Program cost and cadence** remain under scrutiny given high expenditures and past schedule slips.

Conclusion

Artemis II is a pivotal test will shape scientific, commercial and strategic competition in lunar space for the coming decade.

E. SECURITY

I. Security Challenges and their Management in Border Areas

1. BSF AND THE INDIA BANGLADESH RIVERINE BORDER

Why in News?

- The Border Security Force to **examine** whether reptiles could be used in vulnerable riverine stretches to prevent infiltration on the Bangladesh frontier.

India-Bangladesh border

- **Border challenge:** The India-Bangladesh border is **4,096.7 km long**, with significant riverine, flood-prone and densely populated stretches that are hard to fence.

- **Fencing status:** Parliament committee data shows about **371 km** of approved fencing remains unfinished, leaving gaps in physical barriers.

What the BSF asked units to do

- **Feasibility study:** Map riverine "gaps" and assess operational practicality of using reptiles as a deterrent.
- **Identify dark zones:** List border outposts lacking mobile connectivity for targeted technological fixes.
- **Report on local incidents:** Provide details of cases registered against villagers in border areas to inform risk assessment.

Challenges

- **Human safety risk:** Deploying dangerous wildlife near populated riverbanks could endanger villagers on both sides, especially during floods.
- **Operational logistics:** Procuring, transporting, housing and controlling reptiles at scale raises major practical and ethical questions.
- **Legal and environmental concerns:** Wildlife protection laws, animal welfare norms and ecological impacts must be examined.
- **Alternatives available:** The government is already pursuing fencing, floodlights and technological non-physical barriers; reptiles would be an unconventional supplement, not a replacement.

Way Forward

- **Scientific Validation:** Conduct ecological and behavioural studies to test feasibility of reptiles in surveillance or deterrence roles.
- **Ethical Safeguards:** Ensure compliance with wildlife protection laws; avoid exploitation of endangered species.
- **Tech Integration:** Focus on **bio-mimicry robotics** inspired by reptiles (snake-like robots, crocodile-shaped drones) rather than live animals.
- **Pilot Trials:** Run controlled experiments in specific terrains (swamps, deserts, riverine zones) before considering wider adoption.

Conclusion

Any decision must **balance border security with human safety,** legal and **environmental concerns,** making technological and **community-centric solutions** more practical.

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GENERAL STUDIES - 4

ETHICS, INTEGRITY AND APTITUDE

I. Ethics in Public Administration

1. An Energy Transition Driven by Ethics

Why in the news?

- The disruption of fossil fuel supplies due to geopolitical conflicts highlights ethical dilemmas in balancing national interest with global climate responsibility.

Ethical Issues in Fossil Fuel Dependency

- **Intergenerational Equity**: Continued reliance on fossil fuels compromises the rights of future generations due to environmental degradation.
- **National Responsibility vs Global Good**: Developing countries face the ethical dilemma of prioritising growth over global climate commitments.
- **Vulnerability and Inequality**: Dependence on external energy sources creates unequal exposure to geopolitical risks and economic shocks.

Ethics of Renewable Energy Transition

- **Sustainability Principle**: Transition to renewables aligns with the ethical duty to protect the environment and reduce carbon footprint.
- **Equity in Transition**: Developed nations have a moral obligation to support developing countries through finance and technology transfer.
- **Ends vs Means Debate**: Transition driven by fear or crisis may lack ethical grounding compared to one based on environmental responsibility.

Critical Minerals and Ethical Concerns

- **Resource Exploitation**: Mining of lithium and cobalt raises issues of environmental damage and labour exploitation.
- **Global Inequality**: Concentration of mineral processing in a few countries creates new forms of dependency and power imbalance.
- **Responsible Consumption**: Ethical transition requires sustainable sourcing and minimizing ecological harm.

Values in Policy Decision-Making

- **Prudence**: Policymakers must balance immediate economic needs with long-term sustainability goals.
- **Justice**: Ensuring fair access to energy and equitable burden-sharing in climate action.
- **Accountability**: Governments must be transparent in decisions affecting energy security and environmental impact.

India's Ethical Dilemma

- **Development vs Sustainability**: India must ensure economic growth while adhering to climate commitments.
- **Energy Justice**: Providing affordable energy to all while transitioning to cleaner sources.
- **Strategic Autonomy**: Reducing dependency without compromising ethical responsibility towards global climate goals.

Way Forward

- **Ethical Governance**: Integrate environmental ethics into policy formulation and energy planning.
- **Global Cooperation**: Promote fairness in climate negotiations and resource sharing.
- **Sustainable Practices**: Encourage responsible mining, recycling, and circular economy models.
- **Value-Based Transition**: Shift towards renewables driven by ethics of sustainability rather than fear or crisis.

2. Why Mediation Still Matters in a World at War

Why in the news?

- Ongoing West Asia conflict has revived global debate on mediation as a key tool for peaceful conflict resolution.

Ethical Foundations of Mediation

- **Peace and Non-Violence**: Aligns with principle of resolving disputes without coercion or war.
- **Justice and Fairness**: Ensures equitable solutions acceptable to all parties.
- **Empathy**: Understanding concerns and perspectives of conflicting sides.
- **Responsibility**: Duty of states and institutions to maintain global peace.
- **Respect for Sovereignty**: Balances intervention with autonomy of nations.

Core Ethical Values in Mediation Process

- **Impartiality**: Mediator must act without bias to ensure credibility.
- **Integrity**: Upholding honesty and transparency in negotiations.
- **Patience and Perseverance**: Essential for sustained dialogue in complex conflicts.
- **Accountability**: Mediators must ensure commitments are honoured.
- **Inclusivity**: Considering voices of all stakeholders, including vulnerable groups.

Ethical Theories Applied

- **Utilitarian Approach**: Mediation aims to maximise overall welfare by preventing conflict and suffering.
- **Deontological Ethics**: Emphasises duty to pursue peaceful means irrespective of outcomes.
- **Virtue Ethics**: Highlights qualities like wisdom, compassion, and fairness in mediators.
- **Gandhian Ethics**: Promotes non-violence (Ahimsa) and truth (Satya) in conflict resolution.

Ethical Dilemmas in Mediation

- **Neutrality vs Justice**: Balancing impartiality with need to address injustice.
- **Ends vs Means**: Whether use of pressure or biased mediation is ethically justified.
- **Power Asymmetry**: Ensuring fairness despite unequal bargaining power.
- **National Interest vs Global Good**: Mediators may face conflict between self-interest and ethical duty.

Role of Ethical Leadership

- **Moral Authority**: Leaders must inspire trust and legitimacy in mediation efforts.
- **Decision-Making**: Ethical judgement is crucial in complex negotiations.
- **Conflict Sensitivity**: Awareness of cultural and political contexts.
- **Long-Term Vision**: Focus on sustainable peace rather than short-term gains.

Challenges to Ethical Mediation

- **Geopolitical Interests**: Strategic motives may undermine ethical neutrality.
- **Trust Deficit**: Lack of confidence in mediator's intentions.

- **Implementation Gaps**: Failure to uphold agreements weakens ethical credibility.
- **Resource Constraints**: Limits ability to sustain mediation processes.

Way Forward

- **Ethical Frameworks**: Strengthen adherence to principles of fairness and transparency.
- **Capacity Building**: Train mediators in ethical decision-making and conflict resolution.
- **Institutional Support**: Enhance role of international organisations in ethical mediation.
- **Promoting Dialogue Culture**: Encourage negotiation and cooperation at all levels.