



Educrat IAS
ACADEMY

No Need of going to Delhi Now!
Prepare for UPSC from Kolkata

CURRENT AFFAIRS

MONTHLY MAGAZINE

MAY 2025



THE HINDU



The Indian EXPRESS

1. The fragmentation in the global fight against terror
2. Is social media defining self-worth?
3. A caste census is not a silver bullet for social justice
4. Northeast India: From Periphery to Pivot
5. Unlocking India's Industrial Potential

UPSC 2024 EXAM



AIR 79

MEGHNA
CHAKRAVORTY



AIR 153

SAHARS
KUMAR



AIR 477

PARAMITA
MALAKAR



AIR 165

SAIMA
KHAN



AIR 338

ASHISH
KUMAR



AIR 346

BRATATI
DUTTA



RESERVE LIST

PRIYA
PUROHIT

PARK STREET: 9163228921 & SALT LAKE: 9147388921



TABLE OF CONTENT

| SL. NO | CONTENT | PAGE NO |
|--------|---|-------------|
| | Mains Daily Analysis | 1-67 |
| 1 | India climbs 3 spots to 130 among 193 nations in HDI, but inequality continues to be a burden | 1 |
| 2 | The fragmentation in the global fight against terror | 2 |
| 3 | Civil defence drill today: what will happen, why | 3 |
| 4 | Power and pitfalls of digital influence | 4 |
| 5 | MMR shows a declining trend, reveal latest data | 4-5 |
| 6 | Public health in India strained by flawed policy, weak training | 5-7 |
| 7 | Is social media defining self-worth? | 7-8 |
| 8 | All About IAI HAROP: Loitering Munition Used by India | 8 |
| 9 | Total Fertility Rate in India remains at 2.0; Bihar records highest, Bengal lowest | 9 |
| 10 | Why India must get the Caste Census right | 9-10 |
| 11 | A fundamental reset to drive manufacturing growth | 10-11 |
| 12 | A Fragile Calm | 11 |
| 13 | Stitching a New Story | 11-12 |
| 14 | Why Farmers Prefer Rice, Wheat | 12 |
| 15 | Single-use food packaging forms 84% of Himalayan plastic waste | 12-13 |
| 16 | India's rising e-waste, the need to recast its management | 13-14 |
| 17 | How is the shipping industry tackling emissions? | 14-15 |
| 18 | Shining a Light on the Court - Public Declaration of Assets of Judges | 15 |
| 19 | In India, education without employment | 16 |
| 20 | Ecology is the world's permanent | 16-17 |
| 21 | A death that spotlights irrigation problems | 17-18 |
| 22 | Challenge beyond Pakistan | 18-19 |
| 23 | A caste census is not a silver bullet for social justice | 19-20 |
| 24 | Copyright's Tryst with Generative AI | 20 |
| 25 | From pyramids to hourglasses: how AI can change Indian workplaces | 21 |
| 26 | The Court's Bind: Presidential Reference in TN Governor Case and Its Legal Limits | 21-22 |
| 27 | In the Wake of Crisis, the Need for Bipartisanship | 22-23 |
| 28 | Getting the 'micropicture' at the panchayat level | 23-24 |



| | | |
|----|---|-------|
| 29 | Restore Guardrails | 24-25 |
| 30 | The Future is Bilingual | 25 |
| 31 | WHO adopts Pandemic Agreement to strengthen global health preparedness | 26 |
| 32 | India's 'New Normal' Deconstructed | 26-27 |
| 33 | Scheme-based workers, the struggle for an identity | 27-28 |
| 34 | The Shadow Triangle – India, Pakistan, and China: A New Strategic Geometry | 28-29 |
| 35 | Trump-proofing India-US | 29-30 |
| 36 | Warming Likely to Make Cyclones More Destructive Than Ever Before | 30-31 |
| 37 | Should Water Be Used as a Weapon? | 31-32 |
| 38 | Analysing Poverty Levels in India by Comparing Various Surveys | 32 |
| 39 | The Illiberal in the Mirror | 32-33 |
| 40 | New drugs arrive on the block, but AMR threats continue | 33-34 |
| 41 | Tariff wars and a reshaping of AI's global landscape | 34-35 |
| 42 | Understanding the Social, Cultural and Geographical Contexts of Buddhism | 35-36 |
| 43 | A shadow on our rights | 36 |
| 44 | Liberty Is Not Licence – Public Discourse Must Align With Constitutional Responsibility | 36-37 |
| 45 | The maths of how India's coastline lengthened without gaining land | 37-38 |
| 46 | America against America | 38-39 |
| 47 | Cultivating a Global Farm | 39-40 |
| 48 | Renegotiating Indus Waters Treaty: Way Forward for India | 40-41 |
| 49 | The Dawn of Autonomous Satellites and the Legal Vacuum Above Us | 41 |
| 50 | Focus on heat-resilience despite the monsoon | 41-42 |
| 51 | The Nationalism We Forgot | 42-43 |
| 52 | What monsoon 'onset' means, why it is early | 43-44 |
| 53 | India's New Urban Worry — Rising Overnutrition | 44-45 |
| 54 | Experiential learning: how students can learn more effectively | 45 |
| 55 | Needed, a crypto strategy | 46 |
| 56 | How FTAs with US, UK, EU could impact India's agriculture trade | 46-47 |
| 57 | A Case of Practical, Pragmatic and Innovative Education | 47-48 |
| 58 | The Importance of the Deputy Speaker | 48-49 |
| 59 | A Vicious Loop: Multilateral agencies need to introspect about need and justification for aid to Pakistan | 49-50 |



| | | |
|-----------|--|--------------|
| 60 | Good news in single digits – India's Poverty Falls Sharply, Inequality Declines | 50-51 |
| 61 | Rewriting the Script of Early Childhood Education | 51-52 |
| 62 | The Nature of Escalation | 52 |
| 63 | Drifting Far from Bandung | 52-53 |
| 64 | Northeast India: From Periphery to Pivot | 53-54 |
| 65 | Logistics for India's Global Trade Ambitions | 55-56 |
| 66 | India-Bangladesh Bilateral Dynamics | 56-57 |
| 67 | Dynamics of India's Fiscal Decentralization | 57-58 |
| 68 | Evolving India-Africa Partnership | 59-60 |
| 69 | HDR 2025 & AI-Driven Human Development | 60-61 |
| 70 | Modernising India's Defence | 61-63 |
| 71 | Transforming India's Gig Economy | 63-64 |
| 72 | Active Empowerment of Specially-abled in India | 64-65 |
| 73 | Unlocking India's Industrial Potential | 65-67 |
| | PRELIMS BOOSTER & PIB COMPILATION (THE HINDU & INDIAN EXPRESS) | 68-93 |



Mains Daily Analysis

1. India climbs 3 spots to 130 among 193 nations in HDI, but inequality continues to be a burden

Relevance to UPSC CSE:

Prelims:

Syllabus: Current events of national and international importance; Social development indicators; Reports and indices by international organizations.

Key Areas:

- **Human Development Index (HDI)**
- **United Nations Development Programme (UNDP)**
- Indicators of HDI (**Life Expectancy, Education, GNI per capita**)
- India's rank and progress in HDI
- **Multidimensional poverty**
- Government schemes mentioned (e.g. **Ayushman Bharat, NEP 2020**)

Mains:

GS Paper II: Welfare schemes for vulnerable sections, issues relating to development and management of social sector/services (health, education, human resources)

GS Paper III: Inclusive growth and issues arising from it; Indian Economy and development indicators.

Summary of the Article:

- **India's HDI Rank (2023):** Improved from **133 to 130 among 193 countries** as per the UNDP Human Development Report 2025.
- **HDI Score:** Improved to **0.685 in 2023 from 0.676 in 2022**, remaining in the medium human development category.
- **Gross National Income (GNI) per capita:** Rose to \$9,046.76 in 2023 from \$2,167.22 in 1990.
- **Multidimensional Poverty:** 135 million Indians escaped between 2015-16 and 2019-21.
- **Life Expectancy:** Increased to 72 years in 2023 from 58.6 years in 1990, showing post-COVID recovery.
- **Challenges Highlighted:**
 - **Inequality reduces India's HDI by 30.7%** (among the highest in the region).
 - Persisting gender disparities, low female labour force participation, and political representation.
- **Government Initiatives Cited:**
 - **National Rural Health Mission, Ayushman Bharat, Janani Suraksha Yojana, Poshan Abhiyaan, Right to Education Act, Samagra Shiksha Abhiyan, and NEP 2020.**
- **AI and Future Outlook:**
 - The report titled "**A Matter of Choice: People and Possibilities in the Age of AI**" emphasized AI's role in shaping future development, placing India among the top in self-reported AI skills.

Analytical Insights for Mains:

- India's developmental progress is **evident in income and health**, but inequality and gender gaps remain pressing challenges.
- There is a **need for better education outcomes, not just access.**
- Importance of **AI-readiness and skilling** for human capital development.



2. The fragmentation in the global fight against terror

Relevance to UPSC CSE:

Prelims:

- **Syllabus:** Current events of international importance; International organizations; India's foreign policy.
- **Key Areas:**
 - UN Security Council (UNSC) dynamics
 - Terrorism and global security architecture
 - Role of international diplomacy in conflict resolution
 - **Global vs regional counter-terrorism narratives**

Mains:

- **GS Paper II:** India and its neighborhood: **Bilateral, regional, and global groupings** and agreements involving India: Effect of policies and politics of developed countries on India's interests.
- **GS Paper III:** Internal security, Role of external state and non-state actors in creating challenges to internal security: Challenges to national security and international cooperation

Summary of the Article

- The article discusses the deterioration of global unity in fighting terrorism, citing the **Pahalgam terror attack** (April 22) as a recent example.
- While many countries condemned the attack, there was an **evident lack of consensus on holding Pakistan accountable**, with some nations even urging India to exercise restraint.
- The **UNSC's inaction**, particularly due to Pakistan's current non-permanent membership, further illustrates the **global paralysis in addressing cross-border terrorism**.
- The **United States, Russia, European Union**, and others are now more focused on **Ukraine, Gaza, and internal politics**, reducing pressure on nations like Pakistan despite evidence of state sponsorship of terrorism.
- The article highlights a growing double standard, with countries now labeling terrorism selectively-"**your terrorists**" vs. "**my terrorists**".
- New geopolitical alignments and identity politics, such as **Islamophobia and antisemitism**, have complicated the global response to terrorism.
- India's diplomatic voice, including its **presidency at the UN Security Council and consistent advocacy**, has been isolated in a fragmented global order.
- Nations that once stood firm against terror are now strategically silent, depending on their **diplomatic, trade, or religious alignments**.

Analytical Insights for Mains:

- The article underscores the **erosion of global norms in the fight against terrorism**, with **strategic and economic interests now overshadowing collective security commitments**.
- For India, this shift demands a **recalibration of diplomatic strategy**, greater investment in bilateral and regional coalitions, and stronger use of soft power and multilateral diplomacy.
- The global community must **recognize terrorism as a universal threat, not just a regional one**, and restore accountability mechanisms.
- India must continue pushing for **reform in global institutions like the UNSC**, and actively participate in shaping international legal frameworks for counter-terrorism.



3. Civil defence drill today: what will happen, why

Relevance to UPSC CSE:

Prelims:

Syllabus: Current events of national importance; Disaster management; Internal Security; Government policies and interventions.

Key Areas:

- **Civil Defence Act, 1968**
- **Categories of Civil Defence Districts**
- Role of Ministry of Home Affairs in disaster preparedness
- Mock drills and emergency response mechanisms

Mains:

- **GS Paper III:**
 - Disaster Management
 - **Role of civil defence and institutional mechanisms** in crisis preparedness
 - Internal security and coordination between central and state agencies
- **GS Paper II:**
 - Federal structure and center-state relations in implementing security policies

Summary of the Article:

- The Government of India has directed all States and Union Territories to **conduct mock civil defence drills on May 7, 2025, across all 244 Civil Defence Districts**, to assess preparedness for a possible hostile attack.
- This is part of the **"Civil Defence Exercise and Rehearsal"**, involving air raid sirens, blackout measures, and mock simulations responses. like **aerial or ground assault responses**.
- Districts are categorized into **three types (I, II, III)** based on the threat perception and required level of implementation. **Category I requires full implementation, Category III the least.**
- **The Civil Defence Act, 1968**, is the legal basis for these exercises. It **empowers the government to impose curfews, control essential supplies, regulate communications, and mobilize civilians in emergencies.**
- Preparedness activities include **crash blackouts, camouflaging of vital installations, public warning systems**, and coordinated responses by various personnel (wardens, volunteers, police).
- The drill follows recent events such as the **April 22 Pahalgam terror attack**, and recent reports suggesting cross-border terror threats, particularly from Pakistan.
- Globally, countries like **South Korea, Ukraine, the US, and the UK conduct similar drills**, indicating that civil defence remains a critical component of national security infrastructure.

Analytical Insights for Mains:

- The drill reflects **India's growing emphasis on proactive internal security preparedness**, especially against non-traditional and hybrid threats like **aerial drone strikes, sabotage, or cyber-attacks**.
- This initiative highlights the **importance of inter-governmental coordination and community participation in civil defence**, aligning with the broader disaster risk reduction (DRR) strategy.
- Given the **evolving nature of warfare, including asymmetric and proxy threats**, India's civil defence framework must now also account for technological vulnerabilities, especially in urban and critical infrastructure areas.
- This article illustrates how **India can balance civil liberties with security needs**, ensuring constitutional safeguards while preparing for national emergencies.



4. Power and pitfalls of digital influence

Relevance to UPSC

Prelims:

- **Indian Constitution:** Article 19(1)(a) – Freedom of Speech
- **Important Acts:** Consumer Protection Act, IT Act, Intermediary Guidelines, SEBI/ASCI Guidelines
- **Role of statutory bodies like SEBI and ASCI**

Mains:

- **GS Paper II:** Governance, Constitution, Polity - Government policies and interventions
- **GS Paper III:** Challenges to internal security through communication networks; Role of media and social networking sites in internal security challenges
- **GS Paper IV:** Ethics in public and private relationships; Probity in governance

Summary of the Article:

The article examines the dual nature of digital influence-its ability to spread both valuable information and harmful misinformation. **India, identified as highly vulnerable to digital misinformation (WEF 2024),** faces increasing challenges from influencers who either **promote sensational content** or blur the lines between advice and commercial tactics, especially in health-related domains.

Though influencer marketing can guide informed choices, it often **drifts into deceptive territory with cherry-picked data and emotionally charged narratives.** Legal safeguards exist such as **Article 19(1)(a) of the Constitution, Consumer Protection Act (2019), and the IT Act-but freedom of speech is not absolute and is subject to reasonable restrictions.**

Judicial interventions have reinforced the need for accountability. For example, the Delhi High Court ruled that only qualified professionals should share health advice. **Regulatory bodies like SEBI and ASCI** have also enforced guide transparency and authenticity in influencer content.

The article calls for stronger enforcement, mandatory registration of health influencers, and improved consumer education to counter misinformation and preserve public trust.

Analytical Insights for Mains:

- **Freedom vs Regulation:** The article reflects the **ongoing tension between freedom of speech and the societal need to regulate misinformation.**
- **Judicial Oversight:** Indian courts have acted to uphold public interest over **unregulated digital expression,** especially in healthcare.
- **Need for Digital Ethics:** Emphasizes the importance of **ethical standards, transparency, and accountability** for influencers.
- **Policy Recommendations:** Proposes regulatory registration, consumer awareness campaigns, and real-time monitoring of influencer content.
- **Governance Implications:** Urges a proactive approach by regulators to balance innovation in communication with public safety.

5. MMR shows a declining trend, reveal latest data

Relevance to UPSC CSE:

Prelims:

Syllabus: Current events of national and international importance; Health and demographic indicators; Reports and indices.



Key Areas:

- Maternal Mortality Ratio (MMR)
- Sample Registration System (SRS)
- **SDG Target 3.1 (maternal health)**
- Role of **Registrar General and Census Commissioner**
- WHO definition and data on maternal mortality

Mains:

- **GS Paper II:**
 - Issues related to **health and education**
 - Government policies and interventions for health outcomes
 - Role of **international organizations (WHO, UN SDGs)**

GS Paper III

- **Human Resource Development - Health**
- **Statistical trends in health indicators**
- Social sector initiatives and outcomes

Summary of the Article:

- **India's Maternal Mortality Ratio (MMR)** has shown consistent improvement, declining to **93 per 100,000 live births in 2019-21**, compared to 97 in 2018-20 and 103 in 2017-19.
- The data, released by the **Office of the Registrar General and Census Commissioner**, is based on the **Sample Registration System (SRS)**.
- The **highest MMR is seen in the 20-29 age group**, followed by the 30-34 group, the prime reproductive age range.
- States with **high MMRs** include **Madhya Pradesh (175), Assam (167), Uttar Pradesh (151), Odisha (135) and Chhattisgarh (132)**.
- MMR is defined as the **number of maternal deaths per 100,000 live births**, where maternal death includes deaths during pregnancy or within 42 days of its termination (excluding accidental causes).
- According to the WHO, over **700 women died daily in 2023 due to preventable pregnancy-related causes**; 90% of these deaths occurred in low- and middle-income countries.

Analytical Insights for Mains:

- The declining trend in MMR reflects improvements in **institutional delivery, antenatal care, and maternal health schemes** like **Janani Suraksha Yojana and Pradhan Mantri Matru Vandana Yojana**.
- Persistent high MMR in certain states indicates **inter-state inequality in healthcare infrastructure and access**, suggesting the need for targeted public health interventions.
- The issue ties into the larger socio-economic matrix, such as **female education, nutrition, rural health access, and gender equity**.
- Meeting the **SDG-3.1 target by 2030** will require not only technical health interventions but also addressing social determinants of health like early marriage and poverty.
- MMR acts **both as a statistical indicator and a policy challenge** tied to reproductive rights and sustainable development.

6. Public health in India strained by flawed policy, weak training

Relevance to UPSC CSE:

Prelims:



Syllabus: Current events of national and international importance; Health policy and governance.

Key Areas:

- **Public Health governance structure** in India
- **7th Schedule of the Indian Constitution** (Health in State List)
- **Master of Public Health (MPH) education** and workforce challenges
- Behavioural sciences, epidemiology, and public health engineering

Mains:

GS Paper II:

- Issues relating to **health and education**
- Functions and responsibilities of the Union and States
- Governance and policy implementation in health

GS Paper III:

- Issues relating to **development and management of health**
- Human resources in health sector
- **Disaster and emergency preparedness**
- Health infrastructure and systemic reforms

Summary of the Article:

- On **World Health Day 2025**, attention was drawn to India's fragmented public health system and its challenges.
- A key misconception is that **public health is merely a sub-branch of medicine**, leading to narrow policy perspectives. Public health, in reality, is a **blend of medical science, engineering, and social science, aimed at community-level health solutions**.
- India's health governance is scattered across the **State, Union, and Concurrent Lists**, resulting in jurisdictional fragmentation. E.g., food safety, sanitation, and water fall under different ministries.
- The **Master of Public Health (MPH) education system is fragmented**. There's no common national framework, leading to poor standardisation across states and institutions.
- MPH courses often overemphasize managerial or clinical aspects, neglecting key domains **like public health engineering, food safety, behavioural science, and policy communication**.
- **This leads to systemic invisibility:** MPH graduates often struggle to find meaningful roles. Even where trained, many work in NGOs, donor projects, or entry-level data roles without policy-making authority.
- The **lack of intersectoral coordination, absence of a national cadre**, and limited technical training hamper India's response to emerging health challenges (pandemics, AMR, food safety, etc.).
- The article recommends **revisiting public health education frameworks, ensuring multi-disciplinary training**, and creating a technically equipped public health workforce.

Analytical Insights for Mains:

- India's public health infrastructure and policy framework suffers from **colonial legacies and fragmented governance**.
- A national public health workforce like the **Indian Health Service (IHS)** could ensure skilled professionals are placed across the country, especially in under-served areas.
- Health in the State List needs **re-evaluation considering global health emergencies that require central coordination**.
- India's demographic dividend can be leveraged by **revamping MPH curricula to focus on evidence-based, interdisciplinary training with field exposure and policy-oriented learning**.



- A coherent National Public Health Education and Workforce Policy can help India prepare for future pandemics and other complex health emergencies.

7. Is social media defining self-worth?

Relevance to UPSC CSE:

Prelims:

Syllabus: Current events of national and international importance; General issues on social development

Key Areas:

- Influence of social media on adolescents
- Mental health and identity formation
- Role of technology and digital platforms in society

Mains:

GS Paper I (Society):

- Role of women and women's organization, **population poverty and developmental issues**
- Social empowerment, communalism, regionalism & secularism
- Effects of globalization on Indian society

GS Paper II (Governance):

- Issues relating to development and management of social sector/services relating to **Health, Education and Human Resources**

GS Paper IV (Ethics):

- **Role of media and social influence** in shaping attitudes and values
- Ethical issues in emerging technologies

Summary of the Article:

- Social media is no longer just a platform for communication; it is now **a mirror that magnifies self-image**, where identity is formed and validated based on likes, shares, and follower counts.
- There's a growing pressure on young people to curate and present a version of themselves that receives maximum approval, leading to **performance anxiety, body image issues, and blurring of self-expression**.
- The **algorithm-driven nature of social media** reinforces unrealistic standards of beauty, success, and lifestyle, often leading users-especially teens-to feel inadequate or excluded.
- It has been highlighted that how even child influencers are part of this ecosystem, where their **primary gratification comes from follower counts and content creation, which can be psychologically harmful**.
- Experts argue that the **issue lies deeper in the entire digital ecosystem, not just with influencers**. The culture of performance and comparison is engineered and encouraged by platform design itself.
- The article also emphasizes that parents and educators cannot entirely control or monitor online behaviour but must build **emotional resilience, engage in open dialogue, and guide teens on how to separate online validation from self-worth**.
- The **Netflix show Adolescence** and documentaries like **Bad Influence** are cited as reflections of this crisis, showcasing the mental health toll and unrealistic expectations born from social media use.



Analytical Insights for Mains:

- **Digital addiction and mental health** are becoming critical social issues, particularly among adolescents, with long-term implications on national human
- There is a **need for digital literacy programs** focusing not just on **technical skills but also on psychological well-being and online behaviour**.
- Policymakers must **introduce age-appropriate digital policies**, integrate mental health counselling in schools, and regulate content and advertisements targeting youth.
- The **role of influencers and corporate responsibility of social media platforms** in ensuring ethical content and algorithms needs urgent scrutiny.
- **Ethics in technology** must go beyond regulation and aim to foster platforms that support inclusive, healthy, and real human interactions.

8. All About IAI HAROP: Loitering Munition Used by India

Relevance to UPSC:

Prelims:

- **Syllabus:** Defence Technology, UAVs, Missile Systems, International Relations (India-Israel defence cooperation)
- **Key Areas:** Loitering Munitions, HAROP drone, IAI (Israel Aerospace Industries), Precision-guided weapons, Electronic Warfare resilience

Summary of the Article:

- The IAI HAROP is a **loitering munition developed by Israel Aerospace Industries (IAI)**, combining features of UAVs and missiles.
- It carries an **explosive payload** and can loiter for over nine hours before identifying and crashing into a target, hence nicknamed "**suicide**" or "**kamikaze**" drones.
- Unlike traditional missiles that require pre-fed coordinates, the **HAROP uses onboard cameras and sensors to autonomously detect and strike targets**.
- It is **highly effective against time-sensitive, high-value and relocatable targets**, including air defense systems.
- **HAROP is resistant to Electronic Warfare (EW) and GNSS jamming**, and can operate autonomously or via remote operators.
- It evolved from the HARP missile system of the 1980s and includes electro-optical targeting sensors for precision strikes.
- Widely regarded as one of the most feared loitering munitions globally, it has a **claimed success rate of 98% in real combat**.
- Can be launched from **land or sea platforms** and is designed for high-value tactical targets like **radar systems, tanks, and command posts**.

Analytical Insights for Mains (GS Paper III - Security):

- Highlights **India's growing use of autonomous weapon systems** and strategic cooperation with Israel in advanced military technology.
- Emphasizes the **role of loitering munitions in modern warfare**, offering flexibility and adaptability in dynamic combat scenarios.
- Raises considerations around ethical and legal dimensions of autonomous weapons in international warfare norms.



9. Total Fertility Rate in India remains at 2.0; Bihar records highest, Bengal lowest

Relevance to UPSC:

Prelims:

- **Syllabus:** Indian Demography, Government Reports, Population Trends
- **Key Areas:** Total Fertility Rate (TFR), Sample Registration System (SRS), Population Age Structure

Mains:

- **GS Paper 1:** Indian Society - Population and associated Issues
- **GS Paper II:** Issues relating to development and management of Social Sector/Services relating to Health
- **GS Paper III:** Inclusive Growth and Demographic Trends

Summary of the Article:

- As per the Sample Registration System (SRS) 2021 report, **India's Total Fertility Rate (TFR) remains stable at same as 2020**
- **Bihar recorded the highest TFR at 3.0: Delhi and West Bengal reported the lowest at 1.4.**
- The population share of 0-14 years declined from 41.2% in 1971 to 24.8% in 2021, indicating a demographic transition.
- The **economically active population (15-59 years) increased from 53.4% to 66.2% during the same period.**
- Elderly population (60+) increased from 5.3% to 9% (age 60-64) and from 5.3% to 5.9% (age 65+).
- States with highest elderly proportions: **Kerala (16.5%), Tamil Nadu (12.9%), Himachal Pradesh (12.3%).**
- States with lowest elderly proportions: **Bihar (6.9%), Assam (7%), Delhi (7.1%).**
- Mean age of marriage for females rose from 19.3 years (1990) to 22.5 years (2021).
- The **SRS report was based on 8,842 sample units, covering approx. 84 lakh people.**
- Despite perceptions of fast population growth, the report reflects a slowing trend.
- The **2024 interim budget** proposed a high-level committee to study population growth and demographic changes, which is yet to be constituted.

Analytical Insights for Mains:

- A TFR of 2.0 indicates that **India is nearing population stabilization (replacement level = 2.1).**
- **A declining child population and growing elderly share point towards an aging population --- potential future strain on healthcare, pensions, and social security.**
- Regional disparities in fertility and aging highlight the need for differentiated policy responses.
- **Rising female marriage age suggests improvements in women's education and empowerment, influencing fertility decline.**
- The demographic dividend is still present but narrowing --- **necessitating strategic investments in education, skill development, and employment.**

10. Why India must get the Caste Census right

Relevance to UPSC:

Prelims: Indian Constitution - Articles related to equality and social justice, SECC 2011 and caste-based data, Policy measures and commissions (**Justice G. Rohini Commission**)

Mains:

- **GS Paper 1:** Indian Society - Salient features of Indian society, Diversity of India
- **GS Paper 2:** Governance, Welfare schemes, Government policies and interventions
- **GS Paper 3:** Inclusive growth and issues arising from it



Summary of the Article:

- Post-Independence, **India paradoxically pursued caste abolition and social justice together**, leading to policy contradictions.
- The refusal to collect caste data stems from a legacy of caste blindness, despite caste being central to reservations and welfare policies.
- **SECC 2011 was flawed-only 46 lakh caste records were usable due to poor design and execution.**
- The **Justice G. Rohini Commission** found that a few dominant OBC castes cornered a disproportionate share of benefits.
- **A credible caste census is now a legal and administrative necessity to ensure data-backed policies and rectify inequalities.**
- The article proposes a comprehensive blueprint for a successful caste census including **legal backing, expert supervision, digital tools, and inclusive outreach.**

Analytical Insights for Mains:

- **Constitutional Contradictions:** While the **Constitution promotes equality, caste-based reservations make it imperative to collect disaggregated data.** Not collecting such data hampers effective affirmative action.
- **Policy Implications:** Without caste-disaggregated data, policies risk benefiting dominant groups while excluding the truly marginalized.
- **Data for Inclusion:** A caste census will help identify inequalities, improve targeting of policies, and foster trust in public institutions.
- **Recommendations:** The article lays out a roadmap including legal amendments, use of experts, digitized tools, and public participation to ensure accuracy and public trust.
- **Political Neutrality:** Collecting data scientifically and transparently helps insulate the process from political misuse.

11. A fundamental reset to drive manufacturing growth

Relevance to UPSC:

Prelims:

- **Indian Economy:** Manufacturing sector indicators

Mains (GS Paper III):

- **Indian Economy:** Growth, development, and employment, Infrastructure: Energy, Ports, Roads, Airports, Railways

Summary of the Article:

The article emphasizes the **need for a "fundamental reset" in India's manufacturing sector** in response to global shifts toward **innovation-driven, high-tech production**. Despite various initiatives such as the **National Manufacturing Competitiveness Programme (NMCP) (2005)** and **Make in India (2014)**, India's manufacturing output remains relatively low, with weak indicators like low per capita value added and low productivity.

India needs to address foundational issues such as:

- **Rethinking engineering education** to focus more on innovation and practical problem-solving.
- Encouraging **demand-based research and high-manufacturing skills**
- Developing core capabilities in sectors like **semiconductor technology, IT, AI, and engineering.**
- Creating an innovation ecosystem akin to **Silicon Valley, with strong R&D infrastructure.**

The article also calls for:

- **More capital and multi-pronged approaches** to build industrial ecosystems.
- State-sponsored infrastructure like **plug-and-play manufacturing parks.**



- Better alignment between R&D and manufacturing needs.
- Incentivizing startups and public-private collaboration in technology design and production.

Analytical Insights for Mains:

- The Indian manufacturing sector requires structural reforms beyond policy slogans. **A deeper integration of education, R&D, and industry is crucial.**
- Comparing India's productivity and value added to developed and East Asian economies reveals critical gaps in efficiency and innovation.
- Building a **robust innovation ecosystem demands a systems-level approach including policy coherence, investment in skills, and infrastructure.**
- A future-ready manufacturing sector will also need adaptability to global disruptions (like supply chain shifts and protectionist policies).

12. A Fragile Calm

Relevance to UPSC:

Prelims:

- **International Relations** - India-Pakistan Relations, Defence and Strategic Issues - Ceasefire, Cross-border Terrorism, Current Affairs - Bilateral and Multilateral Diplomacy

Mains:

- **GS Paper II:** India and its Neighbourhood – Relations
- **GS Paper III:** Security Challenges - Terrorism and Internal Security
- **Essay Paper:** India's Foreign Policy, Regional Peace and Stability

Analytical insights for Mains:

- The **Indo-Pak conflict cannot be resolved through force alone**; long-term peace demands a political solution.
- India must balance its security needs with **diplomatic engagement**, especially as global geopolitical dynamics shift.
- Reliance on **punitive or deterrence-based approaches** may offer temporary gains but often fail to address root causes.
- The article warns against letting strategic assertiveness turn South Asia into a **"frontline state" in global geopolitics**, especially as the West's role in the region diminishes.
- Political processes, however flawed or difficult, are essential for sustainable peace.

13. Stitching a New Story

Relevance to UPSC

Prelims: Key areas - Indian Economy, International Trade, Free Trade Agreements (FTA), Textile Industry

Mains:

- **GS Paper 2** - International Relations, Trade Agreements, Economic Development
- **GS Paper 3** - Industrial Development, Economic Growth, Agriculture and Textile Sector

Summary of the Article



As of 2024, India's apparel export share to the UK is expected to rise. India is also well-positioned to increase its exports of labour-intensive sectors like textiles and apparel due to lower tariffs. However, achieving this will depend on India aligning itself with the global market practices, particularly fashion aesthetics and sustainability standards.

Challenges exist in areas like **disjointed manufacturing hubs, mainly concentrated in Gujarat and Tamil Nadu, and the logistics issues in delivering goods**. India's efforts must align with the global sustainability goals, particularly by adhering to standards like the **Corporate Sustainability Due Diligence Directive (CSDDD)** and meeting European environmental norms.

Analytical Insights for Mains

- The FTA is an opportunity for India to **integrate into global value chains, particularly in the textile sector**. This could lead to long-term economic growth if global standards are met.
- **Logistics improvements and government policy reforms** will be crucial to reap the full benefits of the agreement.
- India must also focus on sustainability and green practices in its textile manufacturing sector to align with global expectations and compete with countries like Bangladesh and Vietnam.

14. Why Farmers Prefer Rice, Wheat

Relevance to UPSC:

- **Prelims:** Economics (Agriculture), Indian Economy (Agriculture and Farmers' Issues)
- **Mains:** GS Paper 3 (Indian Economy - Agriculture, MSP, Crop Diversification)

Summary:

The article discusses **why farmers in India prefer growing rice and wheat over other crops**. It highlights that the primary factors behind this preference are **minimum support price (MSP)** guarantees and steady yield increases over time due to public breeding and research. Between 2015-16 and 2024-25, the **area under rice and wheat cultivation increased, especially in regions like Punjab and Madhya Pradesh**. The article explains that the government's focus on these crops has led to better yields, which are backed by the Green Revolution.

The article also points out that **wheat and rice varieties have been developed to be resistant to diseases**, with research showing steady yield increases due to advances in breeding. This has made these crops more reliable for farmers. **Other crops, such as cotton, have seen a decline in cultivation** due to lack of research investment and lower profitability compared to rice and wheat.

Analytical Insights for Mains:

- **Impact of MSP:** The government's guaranteed purchase of rice and wheat at MSP plays a crucial role in encouraging farmers to stick with these crops, reducing their risk of price volatility.
- **Research and Development:** The Green Revolution has been pivotal in **enhancing yields and disease resistance for rice and wheat**, but similar initiatives are lacking for other crops, leading to crop monoculture.
- **Policy Suggestion:** There is a **need to focus on improving the productivity of other crops like cotton and pulses** through research and better government support, to reduce over-reliance on rice and wheat.

15. Single-use food packaging forms 84% of Himalayan plastic waste

Relevance to UPSC:

Prelims:

Environment and Ecology (Pollution, Waste Management), Geography of India (Himalayan states)

Mains:



GS Paper 3: Environment - Conservation, Environmental Pollution and Degradation, Waste Management

GS Paper 2: Governance - Role of NGOs, Government policies and interventions

Summary of the Article:

A recent study conducted during **The Himalayan Cleanup 2024** across 250+ sites in the Indian Himalayan region found that **84.2% of the plastic waste consisted of single-use food and beverage packaging**. This plastic was mostly non-recyclable and had no market value. The study was coordinated by the **Zero Waste Himalaya Alliance**, which includes the **Zero Waste Himalaya (Sikkim)** and the **Integrated Mountain Initiative (Dehradun)**. The findings were discussed at the **Zero Waste Himalaya Network Meet in Bir, Himachal Pradesh**.

Volunteers collected 1,21,739 pieces of trash, out of which 1,06,857 were plastic, and **most were single-use**. Around **71% of the plastic waste was non-recyclable multilayered plastics and tetrapaks**, not collected by scrap dealers or waste pickers. These are found littering mountains, choking waterways, and filling up landfills.

Sikkim topped the list with 44% of the audited litter, followed by West Bengal's Darjeeling. The report emphasizes that the plastic crisis is systemic, pointing to failures in production and post-consumer waste management policies. There is now a strong call for solutions beyond the recycling lens.

Analytical Insights for Mains:

- **Systemic Issues:** The Himalayan plastic waste crisis reflects a deeper flaw in production and consumption patterns, especially the growth of single-use packaging with no post-use value.
- **Ineffectiveness of Current Waste Management:** Most collected plastic is non-recyclable, making traditional approaches like recycling and waste picking ineffective in mountain ecosystems.
- **Role of NGOs and Community Movements:** Grassroots initiatives like **Zero Waste Himalaya** and **THC** play a critical role in identifying on-ground realities and promoting sustainable waste practices.
- **Policy Gaps:** The findings reveal a policy void in tackling mountain-specific waste challenges, indicating a need for region-specific legislation and extended producer responsibility (EPR).

16. India's rising e-waste, the need to recast its management

Relevance to UPSC:

Prelims:

- **Environment and Ecology (Pollution: Solid Waste Management)**, Science and Technology (Electronics and their impact), Government Policies (Extended Producer Responsibility - EPR)

Mains:

GS Paper 3: Environmental Conservation, Effects of liberalization on the economy, changes in industrial policy, Science and Technology-developments and their applications and effects, Environmental pollution and degradation

Summary of the Article:

India's rapid digital transformation has led to a **surge in electronic waste (e-waste)**, with volumes rising by over **151% in six years** (from 7.08 lakh metric tonnes in 2017-18 to 17.78 lakh metric tonnes in 2022-23). **India ranks among the top global e-waste generators**. Most of the e-waste comes from informal recyclers, leading to unsafe practices, pollution, and health hazards.

The government uses the **Extended Producer Responsibility (EPR) framework to mandate producers to manage e-waste**. However, improper enforcement and lack of pricing stability in EPR certificates make sustainable waste management difficult.



The **E-Waste (Management) Rules, 2022** introduced a **floor price for EPR certificates to stabilize the market and discourage hazardous recycling practices**. This floor price helps formal recyclers adopt safer technologies and transform e-waste into a valuable resource. However, critics fear price hikes may inflate production costs.

India loses over \$20 billion annually due to poor recycling and informal processing, causing extensive land, water, and air pollution. Informal processing is cheaper but unsustainable. A strong pricing mechanism and formal sector support are needed to curb toxic waste leakage and promote responsible recycling.

Analytical Insights for Mains:

- **Environmental Governance:** The article highlights the **failure of current e-waste policies**, especially the absence of a stable price mechanism in the EPR market.
- **Need for Regulatory Reforms:** It stresses the **importance of a predictable EPR framework**, enabling the formal recycling sector to thrive and meet the twin goals of economic and environmental sustainability.
- **Public Health and Informal Sector Risks:** Heavy reliance on the informal sector poses grave risks to public health due to **unsafe recycling practices** and long-term exposure to toxic substances like lead, mercury, cadmium.
- **Circular Economy and Innovation:** With a stable floor price, India can incentivize innovations in product design (durability, recyclability), enhancing circular economy efforts.
- **Global Benchmarking:** The **demand for a 73% e-waste recycling rate in five years** positions India on the path toward sustainability leadership if adequately supported.

17. How is the shipping industry tackling emissions?

Relevance to UPSC:

Prelims: Environment and Ecology: Climate change mitigation, carbon emissions, International Organisations: International Maritime Organization (IMO).

Mains: **GS Paper 2:** International institutions, Environmental policies, Global agreements.

GS Paper 3: Environmental pollution, Climate change, Conservation.

Summary of the article:

- The **83rd session of the Marine Environment Protection Committee (MEPC)** of the International Maritime Organization (IMO) finalized discussions on market-based measures (MBMs) to reduce GHG emissions from the shipping industry.
- The objective was to **agree on a global framework that balances environmental effectiveness with economic fairness**.
- **Three proposals were majorly considered:**
 1. Flat GHG fuel levy (\$150/ton CO₂).
 2. Fuel standard proposal to reduce emissions via cleaner fuels.
 3. Hybrid model (Singapore) combining pricing and standards (GHG Fuel Standard + GPS + emissions caps).
- **Decision:** A **framework was adopted for MBMs to be finalized by 2025 and implemented by 2027**. It includes a GHG fuel standard and levy-based economic instruments, aligned with the IMO's Revised GHG Strategy (2023).
- **The MBM framework must consider:**
 - Economic impacts on developing countries.
 - Inclusion of Common but **Differentiated Responsibilities Capabilities (CBDR-RC)**. **Delhi Rod Respective**

Analytical insights for Mains:

- **Global Dynamics:** Tensions persist between traditional maritime powers (Europe, US) and developing nations (China, India) regarding fair distribution of carbon costs.
- **Equity Challenge:** Developing countries argue against equal levies, citing historical emissions and economic vulnerabilities. There's demand for compensation and transitional aid.



- **India's Position:**
 - Advocates CBDR-RC
 - **Supports equitable carbon pricing**
 - Keen to **leverage the MBM for long-term investment in green hydrogen and cleaner shipping.**
 - Pushes for green investments and technological leapfrogging through initiatives like the National Green Hydrogen Mission.
- **Implementation Challenges:**
 - **Imposing MBMs could raise shipping costs** (logistics costs in India may increase by 5-8.5% by 2030).
 - Need for **global cooperation, climate finance, and technology transfer.**
- **Future Path: The final MBM will need to be robust yet adaptable.** It is expected to shape green maritime infrastructure, and India seeks to be a global hub for cleaner shipping fuels.

18. Shining a Light on the Court - Public Declaration of Assets of Judges

Relevance to UPSC:

Mains: GS Paper II - Polity and Governance - Transparency in Judiciary, Judicial Reforms, Accountability of Public Institutions. Separation of Powers and Independence of Judiciary.

Summary of the Article:

- The **public declaration of assets by 21 Supreme Court judges, initiated by CJI Sanjiv Khanna**, is praised as a move toward transparency and accountability amidst increasing concerns about judicial corruption.
- Despite the judiciary being considered sacrosanct, **no sitting judge has ever been impeached**, raising questions about the opaque disciplinary mechanisms in place.
- Legal frameworks such as **the Judicial Officers Protection Act, 1850 and Judges (Protection) Act, 1985** provide judges with broad immunity, shielding them from civil/criminal prosecution for actions taken in official capacity, unless there's "proven misconduct or incapacity".
- The impeachment process remains complex and is rarely invoked, **often limited to transfers, resignations, or non-assignment of work.**
- The article emphasizes that this immunity can deter malicious litigation, but also protects misconduct, with misbehaviour or corruption often going unpunished.
- Countries like **US, UK, Germany, South Korea, and Russia** have more structured mechanisms for dealing with misconduct among judges.
- India's approach is **largely non-mandatory and voluntary, lacking legal enforceability.**
- Reference is made to the **Bangalore Principles of Judicial Conduct**, advocating not just asset disclosure but also conflict of interest declarations.
- **The Veeraswamy judgment** and its reiteration in 2019 affirm that judges are public servants, making them accountable under **RTI and Lokpal laws-though actual enforcement remains weak.**

Analytical Insights for Mains:

- Judicial independence is crucial, but **absolute immunity may obstruct accountability**
- **Reforms must ensure a balance between independence and transparent scrutiny.**
- **Asset disclosures are symbolic**; unless backed by legal force and follow-up mechanisms, they serve limited purpose.
- Need for statutory institutional frameworks like **Judicial Complaints Councils** to examine complaints and disciplinary actions.
- Enforcement of conflict-of-interest norms, mandatory disclosures, and clarity on jurisdiction under **Lokpal Act can bolster public confidence.**



19. In India, education without employment

Relevance to UPSC:

Prelims:

- **Syllabus:** Indian Polity and Governance - Education; Government policies and interventions.
- **Key Areas:** National Education Policy (NEP) 2020, unemployability of graduates, higher education quality indicators.

Mains:

- **GS Paper II:** Issues relating to development and management of Social Sector/Services relating to Education and Human Resources.
- **GS Paper III:** Indian Economy - Employment and growth innovation, startups.

Summary of the Article:

- The article critiques **India's education system**, stating that despite various reforms, it has failed to address the core issue of employability of graduates.
- It **reviews NEP 2020, which promises an "educational renaissance,"** but argues that the policy lacks implementation clarity, especially in areas like **mother tongue learning, textbook reform, and industry relevance.**
- The **emphasis remains on degrees rather than skills**, and students emerge without the necessary expertise to match the demands of the job market.
- **Technical excellence without breadth or interdisciplinary knowledge** is cited as a key problem.
- The article criticizes the **absence of industry input in curriculum design and policy drafting.**
- Although Indian universities are rising in global rankings, this is not matched by ground-level impact on student employability.
- **Start-up culture is celebrated**, but India lacks deep technology innovation or indigenous science; most Indian startups are not technologically deep or innovative (e.g., they are glorified service providers or e-commerce vendors).
- The **article also criticizes government obsession with rankings and citations**, arguing that research often remains disconnected from national needs.
- Finally, it warns against politicization and bureaucratic control of education, especially through bodies like UGC, which the article deems outdated and ineffective.

Analytical Insights for Mains:

- NEP 2020's vision must be matched with **industry-relevant curriculum reforms** and collaboration with private sector and global academia.
- **Need for an ecosystem that fosters employable skills, not just degrees.** Interdisciplinary education and soft skills should be emphasized.
- India must invest in **original research and indigenous innovation**, not just service-based or copycat startups.
- University autonomy and depoliticization of education governance are critical.
- Balance needed between **academic freedom, public accountability, and relevance to national development goals.**

20. Ecology is the world's permanent

Relevance to UPSC:

Prelims:



- Environment and Ecology, Climate change and biodiversity and Conservation efforts and international environmental reports change and biodiversity and Conservation efforts and international environmental reports

Mains:

- **GS Paper 3:** Environment (Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment)
- **GS Paper 1:** Geography (Environmental geography, Climate change)
- **GS Paper 4:** Ethics (Moral responsibility towards environment)

Summary of the Article:

- The article revolves around the statement by **Sundarlal Bahuguna**, "**Ecology is the permanent economy**", emphasizing that **economic stability and development** are impossible without ecological health.
- Human prosperity is deeply tied to ecological balance, and **climate change and biodiversity loss are warnings** that we need to reevaluate our approach to development.
- The piece stresses on the need to **strike a balance between ecological protection and economic growth**, noting that current models of development often exploit nature unsustainably.
- **Disconnection from nature**, a result of human evolution and consumption patterns, has intensified global competition and exploitation of resources, leading to severe ecological imbalances.
- The **pace of climate change, largely human-induced**, has outstripped natural adaptation, creating new environmental complications.
- **Nature-based solutions are advocated as sustainable responses to these challenges**, but paradoxically, we continue to exploit nature even while relying on it for solutions.
- The article underscores the **importance of shifting from short-term exploitation to long-term stewardship**, treating ecology as a foundational pillar of human survival and economic stability.
- It **calls for a reconnection with nature**, not just intellectually but emotionally, asserting that true conservation can only arise when humanity acknowledges its role within nature's web, not outside it.

Analytical Insights for Mains:

- Sustainable development requires **redefining "growth" through ecological parameters, not just GDP**
- **Ecological stewardship** should become a normative value in policymaking, economics and education.
- The ethical dimension of environmental protection is underlined - it's a **moral and existential reckoning, not just a scientific or economic one**.
- **Climate resilience, biodiversity protection, and ecological restoration** must be pursued together rather than in silos.
- Technological advancements must be **aligned with biocentric principles**, not anthropocentric exploitation.
- Every individual has a role in shaping a sustainable future; policy alone is not enough without behavioural change.

21. A death that spotlights irrigation problems

Relevance to UPSC:

Prelims:

- **Syllabus:** Agriculture, Environment and Ecology, Governance
- **Key Areas:** Water resources and irrigation, Groundwater depletion, Sustainable agricultural practices, Government policies on irrigation

Mains:

GS Paper II: Governance - Issues relating to poverty and hunger; Welfare schemes for vulnerable sections



GS Paper III: Agriculture -- Irrigation, water resources, cropping pattern; Environmental degradation and sustainable development

Summary of the article:

The **suicide of Kailash Arjun Nagare**, a young farmer from Maharashtra, has highlighted **deep-rooted issues in irrigation access and water equity in India**. Despite having the highest agricultural water use globally, **India suffers from inequitable water distribution due to social inequalities, flawed water governance, and policy failures**.

The **agricultural sector, which consumes around 80% of India's water**, has seen unsustainable irrigation expansion, especially in water-scarce regions like north-west and sub-tropical belts, causing severe environmental and socio-economic impacts. **Groundwater, a key source for irrigation, is over-extracted-17% of assessment units are 'over-exploited', leading to falling water tables and worsening climate vulnerability** especially for marginalised groups like women.

The article flags that **poor irrigation efficiency and cropping patterns mismatched to water availability (like sugarcane in drought-prone areas) are intensifying the crisis**. In states like Punjab and Tamil Nadu, where irrigation infrastructure is robust, irrigation water productivity (IWP) remains low, highlighting inefficient usage.

Analytical insights for Mains:

- **Water access inequity is not just a resource issue** but also a governance and social justice challenge.
- **Groundwater over-extraction and unsustainable cropping choices** are linked to economic vulnerability and climate change.
- Current policies have promoted technological expansion without sustainability, leading to high carbon emissions and inefficient use.
- There is an urgent need to shift towards efficient irrigation systems, including **drip and sprinkler irrigation, and promote crop diversification**.
- **Participatory irrigation management, rainwater harvesting, and solar-powered irrigation** should be incentivised with appropriate regulatory oversight to prevent resource misuse.

22. Challenge beyond Pakistan

Relevance to UPSC:

GS Paper II - International Relations - Bilateral, regional and global groupings and agreements, Effect of policies and politics of developed and developing countries on India, India's neighborhood policy, Changing dynamics of global diplomacy

Summary of the Article:

- The article argues that **India must move beyond its traditional Pakistan-centric strategic outlook and focus on broader global developments**.
- The **Pulwama attack** and India's military response highlighted India's capacity, but larger geopolitical shifts warrant attention.
- **While India and Pakistan were caught in a crisis, global powers were making significant moves:**
 - **Chinese President Xi Jinping** visited Moscow for a summit with Russian President Vladimir Putin to mark deepening Russia-China ties.
 - **US President Trump** was engaged in reshaping alliances in West Asia, strengthening ties with Saudi Arabia and UAE, and exploring peace talks with Iran.
- The **Trump administration's foreign policy is highly transactional**, focusing on arms deals, investments, and diplomatic showmanship rather than long-term alliances.
- **Gulf countries are adapting to Trump's unpredictable policy style** by pursuing independent strategies and not relying solely on American commitments.



- **China and Russia are forming a "post-American" order**, showcasing military and economic cooperation and challenging US-led global structures.
- India's bilateral focus on Pakistan risks becoming a strategic limitation, especially when global strategic landscapes are being redefined.

Analytical Insights for Mains:

- India must broaden its strategic vision to include **emerging geopolitical realignments, especially among China, Russia, US, and Gulf powers.**
- The **decline of US-led unipolarity and rise of multipolar partnerships** (e.g., Russia-China) necessitate greater Indian engagement in global forums.
- **Transactional diplomacy**, as practised by Trump, implies that traditional alliances can no longer be taken for granted-India must prepare for this shift.
- India's long-term security and prosperity depend on how effectively it navigates the larger power equations, not just its response to Pakistan.
- A more diversified and proactive foreign policy can help **India gain strategic autonomy and resilience in the emerging world order.**

23. A caste census is not a silver bullet for social justice

Relevance to UPSC

Prelims: Polity and Governance- Social justice, affirmative action, caste-based policies, Current affairs - Census, OBC, EWS reservation

Mains: GS Paper II: Governance, Welfare Schemes for Vulnerable Sections, Role of Civil Services

GS Paper I: Salient features of Indian Society, Diversity of India

GS Paper III: Inclusive Growth, Social Empowerment

Summary of the Article

The article critically evaluates the government's announcement to include caste enumeration in the upcoming Census. While acknowledging the potential benefits of disaggregated caste data, particularly for OBCs, the author argues that:

- A caste census is not a panacea for social justice. It can **support affirmative action but should not be seen as a precondition or pivot for policymaking.**
- Empirical data already exists (e.g., **SECC, NSSO, NFHS**) highlighting socio-economic disadvantages among marginalised communities. However, this has not led to transformative policy reforms.
- The emphasis should be on **robust political will and moral commitment**, not just data, to address systemic inequalities.
- Historically, major social justice reforms (like **Mandal Commission implementation**) were not based on perfect data but on **political mobilisation and ethical imperatives.**
- There is a risk that **caste data could be politicised**, undermining the objectivity and purpose of the Census, especially in polarised political environments.
- Despite large datasets, **representation of OBCs, SCs, and STs in higher education, judiciary, and bureaucracy remains minimal, showing a lack of implementation rather than a lack of information.**
- **The real challenge is not diagnosis but treatment:** social justice needs political will and ideological commitment beyond statistical exercises.

Analytical Insights for Mains

- **Data Policy Change:** A key insight is that while data is important, policy decisions are primarily political acts, shaped by ideology, mobilisation, and class interest.



- **Moral Commitment vs. Technocratic Fixes:** The state must move beyond technocratic solutions and demonstrate ethical governance in implementing social justice measures.
- **Risk of Politicisation:** Conducting a caste census in a politically charged climate may lead to manipulation and misuse of data rather than effective welfare targeting.
- **EWS vs. OBC Reservations:** The comparison between EWS reservation without data and delayed OBC reforms despite data highlights selective state action based on political convenience.
- **Intra-OBC Inequality:** Disaggregated data may help address EBC (Extremely Backward Classes) concerns within the broader OBC category, but will. 10 if followed by political will.

24. Copyright's Tryst with Generative AI

Relevance to UPSC

Prelims:

- **Syllabus:** Current Affairs, Intellectual Property Rights, Science and Technology (IT & Computers)

Mains: GS Paper II: Polity and Governance-Government policies and interventions for development

GS Paper III: Science and Technology Developments and their applications; Awareness in the fields of IPR.

Summary of the Article

- Copyright law, since its inception in 1710, has evolved with technology, adapting from the printing press to digital platforms like the Internet and now generative AI.
- **Generative AI platforms (e.g., OpenAI) use large language models (LLMs)** trained on vast amounts of data, including copyrighted content, without prior consent from copyright holders.
- This has led to **legal disputes in various jurisdictions**, especially around whether the use of copyrighted content for AI training amounts to infringement.
- Indian courts are now faced with the **challenge of deciding whether using copyrighted material to train AI is technically and legally permissible.**
- Copyright law traditionally dealt with the reproduction of original works; now the focus has shifted to **the use of copyrighted material for machine learning, not direct reproduction.**
- There is a global debate on whether existing copyright frameworks can handle the challenges posed by AI. **The U.S. has a broader 'fair use' doctrine, while Indian law is more rigid and enumerative in exceptions.**
- OpenAI has introduced an opt-out mechanism for publishers to exclude their data from future AI training, but this does not apply retroactively.
- Experts like **Prof. Arul George Scaria** emphasize the need to balance access to knowledge with protection for creators, and highlight that AI training should not undermine the core intent of copyright law.

Analytical Insights for Mains

- AI challenges the **traditional concept of authorship and originality**, requiring a rethinking of IP laws to account for machine-generated outputs.
- The law must ensure a **level playing field between tech giants and smaller players**, preventing monopolization of AI capabilities.
- The **dichotomy between human creativity and machine generation must be recognized** in law to avoid stifling innovation or unfairly disadvantaging original creators.
- Courts need to clarify whether the use of copyrighted data for training constitutes fair use or infringement, especially in the Indian context where the fair dealing principle is narrower.
- There's a need for India to develop a nuanced policy on **AI and copyright, balancing innovation, public access to knowledge, and the rights of original content creators.**



25. From pyramids to hourglasses: how AI can change Indian workplaces

Relevance to UPSC:

Prelims:

- Syllabus: Science and Technology - developments and their applications

Mains:

- **GS Paper III: Science** and Technology; Economic Development
- **Topics:** AI and its impact on employment, innovation, digital economy, future of work in India

Summary of the article:

- **Artificial Intelligence (AI)** is rapidly changing how Indian companies operate, shifting from a **traditional pyramid model (hierarchical) to an hourglass model (lean middle management with automation of routine tasks)**.
- AI boosts efficiency, projected to **increase productivity by up to 25%**, while also offering flexibility in how work is organized.
- Europe and other advanced economies are already seeing a trend toward fewer middle managers, replaced by AI systems and tech-driven supervision.
- In India, this **transformation has double-edged implications** - offering vast potential but also risk of exclusion and digital inequality.
- High-wage jobs (e.g., AI specialists) and low-end service roles may grow but mid-skill jobs are at risk, **forming the "hourglass" structure**.
- **World Economic Forum ranks India 72nd in preparedness for AI**, with a **low Human Capital Index (0.49) and Digital Skills Readiness Index (0.80)** - showing regional and skill-based disparities.
- AI integration is being seen in textiles, pharma, banks and financial services, cutting costs and enhancing output.
- **New roles such as AI auditors, ethics leads, and cyber-risk experts** are emerging, but skilling remains a major challenge.
- India has a young workforce, and upskilling could help avoid job losses. For example, over 90 million jobs could shift to newer roles by 2030.
- AI's effectiveness in India is limited by infrastructure gaps, with 65% of people in rural areas and low digital penetration.

Analytical insights for Mains:

- **AI adoption must be inclusive**, avoiding the creation of a "two-speed" economy where only top-tier firms benefit.
- The hourglass model may **challenge India's family-run business traditions and hierarchical culture**.
- Reskilling programs must **target basic digital skills, problem-solving, and AI-related tasks** to keep pace with changes.
- **AI policies should ensure a human-centric approach:** preserving core decision-making roles for humans and designing systems with ethical guidelines and cybersecurity.
- State intervention may be required to bridge the skill and digital infrastructure gap, especially in Tier-2 and Tier-3 cities.

26. The Court's Bind: Presidential Reference in TN Governor Case and Its Legal Limits

Relevance to UPSC:

Prelims:

- **Polity:** Articles 143, 163, 174 of the Constitution

Mains:



- GS Paper II: Separation of powers between various organs, Role of Judiciary and Executive, Federalism and Centre-State relations, Issues with constitutional functionaries (Governor)

Summary of the Article:

- The Union government is exploring a **Presidential Reference under Article 143** to the Supreme Court to clarify if a Governor can indefinitely withhold assent to bills passed by a state legislature (as in the Tamil Nadu case)
- **Article 143** empowers the **President to seek the SC's advisory opinion**, but such advice is not binding and cannot overturn a previous Supreme Court verdict.
- A similar move was made in **2012 in the 2G spectrum case** (Natural Resources Allocation), but the Supreme Court had then reiterated that auctions were the only method for allocating spectrum.
- In the current TN case, a two-judge bench ruled that the **Governor cannot delay or refuse assent indefinitely**, triggering the Union's attempt to seek a Presidential Reference, seen by some as **"bench hunting."**
- Such an important constitutional issue, involving **interpretation of Articles 163 and 174**, ought to have been referred to a larger (five-judge) Constitution Bench.
- The article stresses that **constitutional questions of such depth should not be resolved by small Benches due to the need for deeper reasoning and diversity of legal viewpoints.**
- The judiciary in the past has modified key constitutional practices (e.g., judicial collegium) through advisory opinions, though these are technically non-binding.
- The lack of clear guidelines for when a matter must be referred to a larger Bench or decided under Article 143 adds to the confusion.

Analytical Insights for Mains:

- The article reflects the **institutional tension between the Executive and the Judiciary**, especially over governor's discretionary powers.
- It also shows the **limitations of Article 143**, where advisory opinions may lack enforceability but still carry moral and political weight.
- Raises concerns about **forum shopping/bench hunting**, which may affect judicial independence and consistency.
- Points to the need for clearer procedural norms on when **Constitution Benches are to be constituted and how references under Article 143 should be handled.**
- Reiterates the **importance of judicial restraint and constitutional clarity in politically sensitive matters.**

27. In the Wake of Crisis, the Need for Bipartisanship

Relevance to UPSC

Mains Syllabus:

- **GS Paper II:** Governance, Constitution, Polity, Social Justice and International relations (Role of Parliament, Pressure groups, Political Dynamics)
- **GS Paper III:** Internal Security (Challenges to internal security through terrorism)

Summary of the Article:

The article, written in the wake of the **Pahalgam terrorist attack (April 22, 2025)**, stresses the **need for bipartisan unity in times of national crisis**. Shashi Tharoor highlights how, historically, Indian political parties have used security crises for **political point-scoring** rather than fostering **unified national responses**.

- **Political division in times of crisis** undermines the coherence and effectiveness of security strategies.
- Drawing from examples like the **2019 Pulwama attack**, the author notes how **retaliatory military responses were politically weaponized** during elections, instead of being seen as united national action.



- He warns against the **perennial cycle of political blame games**, which distract from crafting a **long-term, bipartisan national security strategy**.

Tharoor provides global precedents where **bipartisanship strengthened national security**:

- **Post-9/11 USA**, where Democrats and Republicans unified against terrorism.
- **New Zealand**, where PM Ardern coordinated bipartisan reforms after the Christchurch attack.
- **Western Europe**, where bipartisan consensus emerged in response to Russia's invasion of Ukraine.

In India, the situation is different:

- Political parties often **view each other as adversaries**, not collaborators, even in matters of national security.
- There's a **lack of coherent, all-party vision** on foreign or security policy.

Analytical Insights for Mains:

1. Bipartisanship in National Security:

- Essential for **consistent long-term strategic planning**.
- Reduces **knee-jerk responses** and promotes **evidence-based policy** over ideological reactions.

2. Political Maturity Needed:

- Political leaders must prioritize **national interest over electoral calculations**.
- **Cross-party consensus**, like seen in global democracies, is vital in facing terrorism, diplomacy, and internal threats.

3. Need for a Non-Partisan Security Doctrine:

- India should develop a **clear, doctrine-based national security policy** that remains consistent regardless of party changes.
- This must involve **intelligence reform, military preparedness, strategic autonomy, and regional diplomacy**.

4. Depoliticising Terror Attacks:

- Avoid using attacks for **vote-bank or communal narratives**.
- Instead, use such moments to **strengthen democratic unity and resilience**.

28. Getting the 'micropicture' at the panchayat level

Relevance to UPSC:

- **Mains:** GS Paper II: Governance, Devolution of Powers, Panchayati Raj Institutions, GS Paper III: Inclusive Development, Use of Technology in Governance

Summary of the Article:

- The article discusses the **challenges and potential of data-driven decision-making** in Panchayati Raj Institutions (PRIs).
- Though **evidence-based decision-making** is a government buzzword, in practice it remains elusive due to **lack of accessible, usable data**.
- Despite the **availability of vast government data** through the **National Data Sharing and Accessibility Policy (2012)**, the data is often in a **non-user-friendly format**, making it hard for the public and elected representatives to understand or use.
- The **Panchayat Performance Assessment Index (PAI)** is introduced as a **composite index** aimed at evaluating over **2.16 lakh gram panchayats** across themes aligned with the **SDGs**.



- PAI is based on **566 unique data points** and aims to **provide clarity on the performance of GPs**, aiding both local officials and higher authorities in decision-making.
- A major concern raised is that **23,207 GPs (40%) out of 57,702** have not submitted the required data, indicating serious lapses in data quality and reporting.
- The article emphasizes the need for **clear, visual, and simplified data tools** and regular **capacity building for officials and CSOs** to enable effective use of such data for development.
- **PAI scores can be used** to align with government programs like **DMF, MPLADS, MLALADS**, and **realization of SDGs by 2030**.

Analytical Insights for Mains:

- **Micropicture-level data** is crucial to ensure **bottom-up planning** and reduce reliance on anecdotal or intuition-based governance.
- The **digital divide** and lack of data literacy among local officials and citizens needs urgent attention.
- Institutional mechanisms like PAI, if well implemented, can drive **accountability and transparency**.
- There is a need to move from a mere data generation approach to **data empowerment**—where local governments **understand, utilize, and act on data**.
- The approach can be replicated for **urban local bodies** using a similar **Baseline Performance Index**.

29. Restore Guardrails

Relevance to UPSC:

Prelims: Environmental Impact Assessment (EIA), Post-facto environmental clearance, Key Supreme Court judgments (Common Cause vs Union of India, Alembic Pharmaceuticals vs Rohit Prajapati)

Mains (GS Paper II & III):

- **GS II:** Role of Judiciary, Government Policies, **GS III:** Environment, Conservation, Sustainable Development

Summary of the Article:

- **Environmental clearances act as safeguards** to ensure developmental projects do not harm ecosystems, wildlife, or human health.
- The **EIA Rules of 2006** were framed to balance development with sustainability, rooted in the **precautionary principle**.
- This principle has been weakened since **2017**, when the **Ministry of Environment, Forest and Climate Change (MoEFCC)** allowed **post-facto environmental clearances**—permissions granted **after a project has begun**.
- This was **consolidated in 2021** via an Office Memorandum (OM) creating a formal regime of post-facto clearances.
- The **Supreme Court** struck down both the **2017 notification and 2021 OM on May 16, 2025**, criticizing the government for **favouring violators**.
- The Court highlighted that such clearances **dilute environmental jurisprudence** and **undermine EIA norms**.
- In past rulings like **Common Cause vs Union of India (2017)** and **Alembic Pharmaceuticals vs Rohit Prajapati**, the SC emphasized that post-facto clearances violate **fundamental environmental principles**.
- The **2017 policy shift led to over 50 defaulter projects** (coal, iron, limestone mines, cement plants) getting post-facto clearances despite **serious ecological and public health concerns**.



Analytical Insights for Mains:

- The SC verdict **reaffirms judicial activism** in defending environmental safeguards.
- It underscores the **interlinkages between environmental regulation, sustainable development, and constitutional rights** like Article 21 (Right to Life).
- It challenges the **false binary between development and environment**, reinforcing that **sustainable development is not a zero-sum game**.
- The editorial urges a shift from **ease-of-doing-business** to **responsible governance**, emphasizing that **regulatory processes must evolve without compromising ecological integrity**.

30. The Future is Bilingual

Relevance to UPSC:

Mains: GS Paper I: Indian society – Diversity of India, GS Paper II: Issues related to education, government policies, Essay Paper: Language and identity, bilingualism in India

Summary of the Article:

- The author, **Peggy Mohan**, argues that **India is at an inflection point linguistically**, as people who were once hesitant to engage outside their native languages are now finding confidence in doing so, largely through **translation and bilingualism**.
- **Books originally written in English are being translated into Indian languages**, reflecting a growing demand from non-English speakers to participate in mainstream discourse.
- This **new energy is not driven by government policy** but by **ordinary people initiating conversations in Indian languages**, and seeking inclusivity without switching entirely to English.
- The article explores the concept of **diglossia**, where multiple languages play distinct roles: for example, **English for technical subjects and Hindi for casual or cultural conversations**.
- India's historical language policy, rooted in **Macaulay's Minute of 1835**, privileged English for modern education and governance. However, this model is being increasingly questioned.
- The colonial system aimed to create a class of Indians fluent in English to assist in governance, but **this created exclusion for the majority**, who could not access modern knowledge in their native tongues.
- **Now, regional languages are being reclaimed as valid mediums for intellectual, academic, and public life**.
- There is a **growing realization that English-medium schooling is not the only pathway to success**, and countries like **China, Korea, and Japan** succeed using native-language instruction till a later age.

Analytical Insights for Mains:

- **Language and Inclusivity:** A multilingual approach in education and discourse allows for **wider participation** and can bridge the **urban-rural and class divides**.
- **Decolonizing the Mind:** Challenging the **colonial legacy of English supremacy** can empower regional languages and democratize knowledge.
- **Translation as Empowerment:** The **emergence of translation** reflects not just literary interest but a **sociopolitical shift** toward inclusiveness.
- **Policy Implications:** There is a need to **revisit India's language policy**, balancing English proficiency with **robust native language education** to improve cognitive development and social cohesion.



31. WHO adopts Pandemic Agreement to strengthen global health preparedness

Relevance to UPSC:

- **Prelims:** International Organizations – WHO, Global health governance, Key international agreements on pandemics, COVID-19 related international developments
- **Mains: GS Paper II:** International institutions, Global health cooperation, **GS Paper III:** Disaster management – Pandemic preparedness and response mechanisms

Summary of the Article:

- The **World Health Organization (WHO)** member states **unanimously adopted the world's first Pandemic Agreement** to enhance global health preparedness and ensure equitable responses to future pandemics.
- The agreement was finalized after **three years of negotiations** initiated in response to the **COVID-19 crisis**.
- The decision was made during the **78th World Health Assembly**, the WHO's highest decision-making body.
- It received approval in Committee by vote (**124 in favour, 0 against, 11 abstentions**).
- **Tedros Adhanom Ghebreyesus**, WHO Director-General, called the agreement a testament to **global leadership, collaboration, and commitment**.
- The agreement is seen as a **victory for public health, science, and multilateral action** and aims to better protect the world from future pandemics.
- It recognizes the need for **international cooperation** so that **citizens, societies, and economies are not left vulnerable** as they were during COVID-19.
- The agreement outlines **principles, approaches, and tools** for improved **international coordination**, with emphasis on:
 - Strengthening **global health architecture**
 - **Timely and equitable access** to vaccines, therapeutics, and diagnostics

Analytical Insights for Mains:

- The adoption of the Pandemic Agreement marks a **paradigm shift in global health governance**, emphasizing **collective preparedness** over fragmented national responses.
- It underscores the importance of **multilateralism in addressing transnational health threats**.
- With growing concerns over future zoonotic diseases, this agreement may serve as a **model for global cooperation** in areas beyond health, including climate change and biodiversity.
- However, the **effectiveness of the agreement** will depend on its **implementation, funding commitments, and equity in health resource distribution**, especially for developing countries.

32. India's 'New Normal' Deconstructed

Relevance to UPSC:

Mains (GS Paper II & III):

- **GS II:** India and its neighbourhood – relations, **GS III:** Role of external state and non-state actors in creating challenges to internal security, **GS III:** Security challenges and their management in border areas

Summary of the Article:

The article analyzes India's evolving strategy in dealing with terrorism emanating from Pakistan, especially in the wake of the **Pulwama terrorist attack (2019)** and subsequent **Balakot air strikes**. The author argues that India's



policy has now shifted towards a “**new normal**” in its security doctrine, characterized by a **firm, non-escalatory, yet decisive retaliation** to cross-border terrorism.

The **Prime Minister’s speech in English**, especially targeted at a global audience, signals this doctrinal shift. The author outlines India’s calibrated military responses: **Operation Shatrujeet**, the **Balakot air strikes**, and retaliatory artillery and drone actions as **examples of measured and precise use of force**, while avoiding escalation.

India’s **new normal** includes:

- **No tolerance for terrorism**, regardless of Pakistan’s nuclear posturing.
- **Rejection of the idea** that terrorism can be used as a statecraft by “plausible deniability.”
- **Recalibration of strategic restraint**, where India will **no longer wait passively** but will act **preemptively and proportionately**.
- Use of **intelligence, surveillance, and reconnaissance (ISR)** to plan precise strikes with **zero collateral damage**.

Analytical Insights for Mains:

- **Strategic Shift:** India’s approach post-Uri and Pulwama marks a fundamental departure from the previous doctrine of strategic restraint.
- **Diplomatic Messaging:** India’s public articulation of its strategy serves as a **deterrent**, both to Pakistan and the international community.
- **Global Implications:** The shift could set a precedent for how **democracies handle cross-border terrorism** while remaining within the bounds of international law.
- **Civil-Military Coordination:** The strikes highlight improved synergy between the **political leadership and military command**, enabling **swift decision-making**.
- **Challenge to Pakistan’s Narrative:** By exposing Pakistan’s use of terrorism as state policy, India is attempting to **reshape global perceptions** and isolate Pakistan diplomatically.

33. Scheme-based workers, the struggle for an identity

Relevance to UPSC:

Mains: GS Paper II: Governance, Social Justice (Issues relating to development and management of Social Sector/Services), **GS Paper III:** Economic Development (Inclusive Growth and associated issues)

Summary of the Article:

- **Around 60 million scheme-based workers (SBWs)** such as **Anganwadi Workers (AWWs)**, **Anganwadi Helpers (AWHs)**, **Accredited Social Health Activists (ASHAs)** and **Mid-Day Meal Workers (MDMWs)** are employed by the central government through schemes like **ICDS, NRHM and mid-day meals**.
- Despite being acknowledged by leaders and institutions, SBWs are **denied basic labour rights** like **minimum wages, social security, and workers’ status**.
- **SBWs perform crucial community functions**, including nutrition care, child health, school enrolment, and acting as a bridge between communities and the public health system.
- These workers have adopted **strikes, legal action, and social dialogue** as tools for recognition.
- **Central trade unions (AITUC, BMS, CITU)** support their cause, but there are **no standard wage negotiation mechanisms**—leaving them at the mercy of government discretion.
- Judicial responses have been mixed:
 - In **State of Karnataka v. Umadevi (2006)**, the Supreme Court ruled Anganwadis were **not workers under statute**.



- In **2022**, the court recognized their right to **gratuity** under the **Payment of Gratuity Act, 1972**.
- In **2024**, Gujarat HC directed **regularisation of AWWs and AWHs** as **Class III and IV employees**, pending policy formulation.
- Despite efforts by **Indian Labour Conference (ILC)** to recognise SBWs as "workers", the **government hesitates due to financial burden** and policy delays.
- There is an ongoing **push to privatise ICDS**, which unions strongly oppose.

Analytical Insights for Mains:

- The struggle of SBWs underscores the **lack of legal identity and social security** for informal sector workers engaged in **government-run welfare schemes**.
- The government's **delayed policy action** and **budgetary concerns** reflect the tension between **fiscal conservatism and social justice**.
- The **judiciary has played a mixed role**—with some rulings reinforcing their marginal status, and recent ones providing some relief.
- Recognition of SBWs as "workers" is not just economic but **symbolic of labour dignity and state responsibility** in a welfare state.
- **Privatisation of ICDS** may further erode worker rights and quality of service delivery in rural India.

34. The Shadow Triangle – India, Pakistan, and China: A New Strategic Geometry

Relevance to UPSC:

Prelims:

Mains: GS Paper II: International Relations: Bilateral, regional and global groupings and agreements involving India, Effect of policies and politics of developed and developing countries on India's interests, India and its neighborhood relations

GS Paper III: Security: Role of external state and non-state actors in creating challenges to internal security, Security challenges and their management in border areas

Summary of the Article:

- **The recent India-Pakistan military exchange** reflects a **shift from passive restraint to active deterrence** by India.
- The situation marks a **departure from previous bilateral flashpoints** due to **China's increasing role** in Pakistan's military posture.
- **US neutrality and crisis management limitations** have re-emerged, with Washington reverting to a **traditional playbook** of restraint and bilateral diplomacy.
- India's **retaliatory stance enhances political legitimacy** and signals to both domestic and international audiences that **provocations will be met with calibrated responses**.
- The conflict shows the **collapse of the India-Pakistan hyphenation** in US policy, replaced now by **India-US strategic ties in tech, defence, and Indo-Pacific**.
- **Hyphenation diplomacy** (treating India-Pakistan as a single strategic unit) is now being rejected globally, as **India asserts itself as a separate strategic entity**.
- Pakistan, facing internal instability and economic dependence on China, has used the moment to **seek third-party recognition and mediation**, particularly through China.
- **China's embedded strategic role** alters the structure of South Asian deterrence: if confirmed, **Chinese-origin missile systems and defence shields** for Pakistan would **change the rules of engagement**.



- **India risks confronting China-origin war doctrine and possibly real-time support** in any future engagement.
- The article highlights **the danger of structural instability**: frequent tactical crises with **escalatory potential**, enabled by **China-Pakistan axis** and **limited US role**.
- The **Indus Waters Treaty as a signaling tool** shows how even non-military treaties are now part of India's deterrence toolkit.
- Overall, **South Asia's security dynamic is now tripolar**, shaped by **India's active deterrence**, **Pakistan's strategic leveraging of China**, and **China's geopolitical designs**.

Analytical Insights for Mains:

- India's strategic deterrence has evolved from **reactive diplomacy to assertive signaling**, reflecting a **doctrinal shift in its military posture**.
- The **China-Pakistan nexus** introduces a **new dimension of strategic instability**, making traditional bilateral conflict models obsolete.
- There's an urgent need to **reassess treaties and crisis protocols** (e.g., Indus Waters Treaty) under this new geometry.
- India must deepen strategic partnerships (like with the US), but also prepare for **independent crisis management** amidst **US ambiguity and China's assertiveness**.
- The **collapse of old diplomatic frameworks** (like hyphenation) shows India's success in **shaping international narratives**, but also reveals the **emergence of a more complex threat landscape**.
- Future conflicts may be **episodic, short, sharp and triangulated**, with high escalation risks.

35. Trump-proofing India-US

Relevance to UPSC:

Mains:

- **GS Paper 2: Effect of policies of developed countries:** Impact of Trump's second term policies on India, **Role of international institutions and forums**

Summary of the Article:

The article discusses the **disruption caused by Donald Trump in the carefully cultivated India-US strategic relationship**, especially during his second presidential term. It outlines how **Trump's unpredictable and self-centered foreign policy** — including his recent comments on Kashmir and Pakistan — **has reversed the longstanding bipartisan US policy of de-hyphenation** between India and Pakistan.

- **Previous US administrations (Bush, Obama, Biden)** had steered clear of direct mediation on Kashmir, supporting bilateralism instead.
- **Trump's remarks** and willingness to mediate the Kashmir issue **resurrect Pakistan's hopes of US intervention**, which India firmly opposes.
- There is a broader concern in Delhi about **Trump's weakening of multilateral alliances**, and **his hostility to China coupled with proximity to Russia**, which undermines the **US-led liberal international order**.
- **India has experience dealing with a fragmented US power structure**—including the **Congress, businesses, and civil society**—beyond the President.
- The article urges **India not to overreact to Trump's provocations** but to **continue engaging with other US stakeholders**, including **American businesses and Congress**, to safeguard long-term interests.



Analytical Insights for Mains:

- **Bipartisan consensus in US foreign policy can provide stability**, but when disrupted (as under Trump), **countries like India must hedge by deepening engagement beyond the White House.**
- **India's foreign policy must not be personalized or reactionary.** The Trump experience emphasizes **the need for long-term strategic patience**, use of **non-executive US institutions**, and **economic diplomacy.**
- **Strategic autonomy and multipolarity** are crucial as the US becomes a less predictable partner.
- India must **insulate critical bilateral issues like Kashmir from global power politics**, especially when external powers show inconsistency.
- There is a **need to "Trump-proof" India-US relations** by building **resilient and institutionalized frameworks** of cooperation.

36. Warming Likely to Make Cyclones More Destructive Than Ever Before

Relevance to UPSC:

Prelims: Climate Change and its Impact, Cyclones (Natural Disasters), SSP Scenarios (Shared Socioeconomic Pathways), Mangrove Ecosystems

Mains: GS Paper I: Geographical Phenomena (cyclones, climate change), GS Paper III: Environment and Ecology; Disaster Management

Summary of the Article:

- **New research by ETH Zurich shows that global warming under the SSP5-8.5 scenario could make cyclones more intense and shift their zones of impact poleward**, affecting areas previously untouched by such storms.
- **Cyclones are becoming more destructive** due to climate change, not only in intensity but also in frequency and geographic location.
- **SSP5-8.5** is a high-emissions scenario characterized by fossil fuel-driven growth and high radiative forcing of **8.5 W/m²** by 2100.
- Researchers assessed the **ecosystem risks of tropical cyclones** under three SSP scenarios (SSP2-4.5, SSP3-7.0, and SSP5-8.5), focusing on shifts in cyclone paths and recovery capacities of different ecosystems.
- **Mangrove forests are highly vulnerable:**
 - Under SSP5-8.5, **up to 56% of mangroves globally and 52.87% in Southeast Asia** may be exposed to high/severe cyclone risk.
 - Under SSP3-7.0, **97.8% of Southeast Asia's mangroves** could be at risk.
- Cyclone impacts were categorized by wind speed and sea-level rise.
 - High intensity defined as **>70 m/s winds and >6–7 mm/year sea-level rise.**
- **Modelling suggests tropical cyclone belts could shift away from the equator**, exposing ecosystems in higher latitudes that have not adapted to such extreme weather.
- Vulnerable ecosystems were grouped into:
 - **Hazard-modified ecosystems** (likely affected by changes in cyclone dynamics)
 - **Vulnerable ecosystems** (less adaptable)
 - **Recovery-challenged systems**
- The study warns that **policymakers must consider climate-driven cyclone risks** in long-term planning, especially in coastal and equatorial regions.



Analytical Insights for Mains:

- **Cyclone migration due to climate change** will test the resilience of ecosystems and infrastructure in higher latitudes, prompting the need for adaptive planning.
- **Mangrove degradation** due to high cyclone exposure could impact carbon sequestration, biodiversity, and coastal protection.
- The study reflects the **need for climate risk-informed urban and coastal planning** in light of increasing storm intensity.
- **Mitigation efforts under Paris Agreement must be intensified** as current policies may not be sufficient to limit warming to <2°C.
- Highlights the **interlinkages between climate change, disaster risk, and ecosystem vulnerability**, crucial for GS III answers on environmental governance.

37. Should Water Be Used as a Weapon?

Relevance to UPSC:

Mains (GS Paper II & III): International relations (India-Pakistan), Water security as a strategic and humanitarian concern, Ethics of water as a weapon, Environmental and geopolitical dimensions of water-sharing, Conflict resolution mechanisms for transboundary rivers

Summary of the Article:

- **Water is not just a sovereign resource but a lifeline**, raising questions about legality and morality if used as a weapon.
- The **Indus Waters Treaty (1960)**, brokered by the **World Bank**, is one of the most successful examples of transboundary water cooperation. It **allocates the eastern rivers (Ravi, Beas, Sutlej) to India and the western rivers (Indus, Jhelum, Chenab) to Pakistan**, with limited non-consumptive uses allowed to India.
- The IWT has **survived three wars (1965, 1971, 1999)** and several crises, reflecting its robustness and the importance of water as a stabilizing factor in bilateral relations.
- India's **hydropower projects** like **Kishanganga and Ratle** have been points of contention, with Pakistan alleging violations of the treaty. Disputes are usually addressed by **neutral experts, arbitrators, or court of arbitration**.
- The IWT prohibits unilateral withdrawal or weaponization, with **no provision for abrogation or suspension** even under extreme circumstances.
- The **World Bank plays a guarantor role** and is compelled to intervene if treaty obligations are disputed.
- **Transboundary river disputes are not unique to South Asia**; similar issues exist in Europe (Danube), Southeast Asia (Mekong), and Africa (Nile). The **International Court of Justice (ICJ)** and **regional compacts** have helped address such disputes.

Analytical Insights for Mains:

- **Water must not be weaponized**, as it is a **basic human right**. Such action could **destabilize the region**, invite **international censure**, and **undermine India's credibility**.
- **India's strategic strength lies in being a rules-based actor**; retaliatory cutting off of river flows, even during crises like Pulwama, could backfire diplomatically.
- **While India can maximize its hydropower usage within treaty limits**, abrupt or extreme actions could violate treaty provisions and disrupt regional cooperation.



- **Multilateral institutions and cooperative federalism** are better paths forward to resolve such issues than unilateralism.

38. Analysing Poverty Levels in India by Comparing Various Surveys

Relevance to UPSC:

- **Mains (GS Paper 2/GS Paper 3):** Welfare schemes and data-driven policymaking, Issues related to poverty, planning, and statistics, Challenges in evidence-based economic governance

Summary of the Article:

- The **central finding** is that **poverty reduction in India slowed down considerably after 2011-12**.
- While poverty fell **from 37% in 2004-05 to 22% in 2011-12**, it only reduced to **18% in 2022-23**.
- India hasn't had an official poverty estimate since 2011-12, leading to **contradictory unofficial estimates**.
- The study compares and combines data from **multiple surveys** using **survey-to-survey imputation** to fill gaps.

Analytical Insights for Mains:

- **The lack of recent official poverty data** creates challenges for policy and welfare targeting.
- **Survey-to-survey imputation methods** can bridge data gaps but must be validated for reliability.
- The study reveals a **clear deceleration in poverty reduction** post-2011-12.
- It also shows that **data source and method matter significantly**, with estimates ranging from 10% to 30% for the same period.
- **Poverty reduction slowed due to:**
 - **Slower GDP growth**
 - **Stagnant wages in rural India**
 - **Poor employment generation**
 - **Agrarian distress in some states (e.g., UP, Bihar)**
- India added **68 million workers to the labour force** from 2011 to 2022, but poverty fell by **only 38 million**, showing **lesser gains from employment**.

39. The Illiberal in the Mirror

Relevance to UPSC:

Prelims: Indian Constitution – Fundamental Rights (Article 19), First Amendment, Freedom of Expression (FoE) and its reasonable restrictions

Mains (GS Paper II): Role of judiciary, legislature and executive in upholding rights, Challenges to liberal democracy, Issues with free speech and national security, Ethical governance and political theory (GS IV)

Summary of the Article:

- **Freedom of Expression (FoE)** is a **key element of liberal democracy**, but modern states often **misuse liberal norms to suppress dissent**.
- The article examines two recent cases where citizens were penalized or scrutinized for **exercising their right to free speech**, particularly around the issue of the **post-Pulwama military action**.
- These instances **highlight contradictions** in public and institutional responses to FoE — where **selective enforcement** reflects political or ideological convenience.



- India's legislative, judicial, and political history is replete with **examples of restricting FoE**, beginning with the **First Amendment**.
- Anti-terror laws, national interest claims, and **hate speech narratives** are now often used to **curtail legitimate expression**.
- The **real danger lies in the popular sentiment** justifying FIRs and arrests over allegedly offensive speech, especially when **speech is directed against power structures**.
- The article argues that **true respect for FoE** must include defending even the **views we disagree with**, unless there's a clear and **objective legal basis for restrictions**.
- Finally, it points out that the **liberal failure is internal** — liberals themselves often demand action against free speech they dislike, showing an **illiberalism masked by liberal justifications**.

Analytical Insights for Mains:

- There is a **growing paradox in democracies**: states invoke liberal values to justify illiberal actions, particularly against dissent.
- **FoE should not be conditional** on political convenience or majoritarian morality. Any restriction must pass **constitutional and judicial scrutiny**.
- The judiciary and legislature must **resist becoming arbiters of popular sentiment**, instead defending rights even in unpopular scenarios.
- The liberal community must introspect — **demanding suppression of opposing speech** only furthers **authoritarian tendencies**.
- **Safeguarding liberalism** requires not just defending one's own rights, but also those of one's opponents.

40. New drugs arrive on the block, but AMR threats continue

Relevance to UPSC:

- **Prelims:** Antimicrobial resistance (AMR), New antibiotics (e.g., Zosurabalpin, Nafithromycin), Public health threats, Regulatory challenges
- **Mains: GS Paper II:** Issues relating to development and management of health, **GS Paper III:** Science and Technology developments, Awareness in biotechnology, Indigenization of technology

Summary of the Article:

- **India faces a growing crisis of antimicrobial resistance (AMR)**, which threatens public health significantly.
- A new antibiotic named **Nafithromycin**—the **first globally in over 30 years**—has been developed by the Indian biotech firm **Bugworks**, aiming to combat resistant respiratory pathogens.
- **Zosurabalpin**, another new drug, was also developed for resistant gram-negative bacteria.
- **India ranks high in AMR-related mortality**, with over **2,97,000 deaths in 2019** attributable to drug-resistant infections.
- **India has high antibiotic consumption and poor regulatory mechanisms**, leading to over-the-counter sales of antibiotics without prescriptions.
- **Antibiotics are extensively used in animal husbandry and poultry farming**, contributing significantly to AMR.
- The **private healthcare system is a major driver** of unnecessary antibiotic prescriptions, especially in outpatient settings.



- Experts highlight that **AMR is a multifactorial crisis**, needing interventions across **human health, veterinary use, agriculture, and pharmaceuticals**.
- **India has no single surveillance system** for AMR; data is fragmented, limiting coordinated policy responses.
- The **lack of investment and incentives** for antibiotic R&D, **regulatory challenges**, and **market access** issues hamper innovation.
- Solutions suggested include **strengthening regulatory frameworks, public-private partnerships, and global cooperation**, especially through **One Health** approaches.

Analytical Insights for Mains:

- The article highlights that **AMR is a global health security threat**, and India must act urgently through **policy reform, surveillance, and public health investment**.
- There's a need to **balance antibiotic access with stewardship**, particularly in LMICs like India, where **infections are more prevalent and fatal**.
- It emphasizes the **importance of integrating AMR into national development agendas**, including **Ayushman Bharat Digital Mission, public procurement policies, and affordability schemes**.
- The **One Health approach**, integrating efforts across human, animal, and environmental health, is key to effectively address AMR.
- **India's biotechnology ecosystem**, as illustrated by Nafithromycin's development, holds promise but needs **stronger public support and streamlined regulatory processes**.

41. Tariff wars and a reshaping of AI's global landscape

Relevance to UPSC:

Mains: GS Paper 2: International relations, effect of policies of developed countries., **GS Paper 3:** Effects of liberalization on the economy, changes in industrial policy, and investment models; Science and Technology - developments and their applications.

Summary of the article:

- **Post-2024 U.S. presidential election**, tariff policies on imports from countries like **Mexico, Taiwan, China, and Vietnam** have intensified, especially on **AI-critical semiconductor components**.
- The **U.S. imported \$486 billion worth of electronics** in 2024; **\$200 billion** of that was for data processing machines alone.
- These tariffs pose risks to **U.S. tech competitiveness** and may lead to **relocation of data centers to countries like China**.
- **India, with its large engineering graduate pool (~1.5 million annually)** and improving digital infrastructure, is positioning itself as a **"third option"** in the AI rivalry between the U.S. and China.
- **Tariffs raise production costs** and may slow **AI innovation**, leading to what economists call **"deadweight loss"**—economic inefficiencies that benefit neither producers nor consumers.
- **The U.S. plans to triple its semiconductor manufacturing capacity** between 2022-2032, driven by import substitution and strategic independence.
- **India has attracted foreign investment in semiconductor manufacturing**, like **AMD's \$400 million investment** in Bengaluru.
- Rapid growth in AI data processing demands **massive increases in data center power capacity** (up to 327 GW by 2030 in the U.S.).



- **Tariff-induced disruptions** may lead to **fragmentation of global AI development**, where countries build **separate, less collaborative AI ecosystems**.
- The article stresses **India's strategic advantage**: cost-effective engineering talent, digital adoption, and increasing FDI in AI sectors.

Analytical insights for Mains:

- **Tariff wars represent a return to protectionist policies**, affecting global technological development by increasing **costs and disrupting collaboration**.
- India could emerge as a **neutral and advantageous partner** by offering a **competitive, liberal, and innovation-driven ecosystem**.
- **Policy recommendation**: India should strengthen its **semiconductor and digital infrastructure**, reduce dependence on imports, and attract **global AI R&D**.
- **Critical perspective on tariff efficiency**: While they may temporarily shield domestic industries, **long-term innovation and efficiency suffer**.

42. Understanding the Social, Cultural and Geographical Contexts of Buddhism

Relevance to UPSC:

- **Prelims**:
 - Syllabus: Ancient Indian History – Buddhism
 - Key Areas: Buddhist philosophy, historical evolution, socio-cultural spread, archaeological sites
- **Mains**: GS Paper I: Indian Heritage and Culture – Buddhism as a cultural force, GS Paper II: Impact of religion on social justice and community building, GS Paper IV: Ethics – Buddhist values in contemporary context

Summary of the article:

The article explores how **Buddhist teachings are being revisited in the modern era**, especially against the backdrop of **social media-driven self-obsession** and individualism. It underscores that **preoccupation with the self and relentless egoism** contribute to **pain, suffering, and unhappiness**, while Buddhist philosophy offers **tools for inner exploration and ethical living**.

Key insights include:

- **Douglas Ober's work challenges the myth** that Buddhism vanished from India after the 13th century, showing its **continuity until the 19th century** through archaeological and textual evidence.
- Ober's book *Dust on the Throne* reveals **Buddhism's resilience and lasting impact on Indian history and culture**.
- **Buddhist architectural heritage**—like Sanchi, Bodh Gaya, and Rajgir—has been central to **urban Buddhist activity** well into modernity, with **elite patronage** (e.g., B.D. Birla and G.D. Birla) contributing to its preservation.
- Buddhist heritage sites are **"complex ecosystems"** that reflect **changing religious meanings, rituals, stories, and folklore**.
- Books like *Casting the Buddha* by Shashank Shekhar Sinha and *How to Lose Yourself* discuss how Buddhism addresses **social identity, equality, and caste**.
- The article concludes that **Buddhism still offers powerful insights into identity, ethics, and collective well-being** in a fractured modern world.



Analytical insights for Mains:

- The **revival of Buddhism** in modern scholarship helps reinterpret India's **pluralist and inclusive traditions**, countering dominant historical narratives.
- Buddhist ideas remain relevant in **contemporary social issues**, including **caste, poverty, and identity politics**.
- Emphasizing Buddhism's **socially transformative role** can help reshape **inclusive policies** and **ethical frameworks** in governance and civil society.
- **Buddhism's focus on selflessness and mindfulness** offers a **philosophical alternative** to modern consumerism and self-promotion.

43. A shadow on our rights

Relevance to UPSC:

- **Mains: GS Paper II:** Role of Supreme Court as the guardian of Fundamental Rights, Judiciary and Executive relations, Issues relating to civil liberties and constitutional safeguards

Summary of the Article:

- The article critiques the **Supreme Court's recent order in the case of State of Haryana vs Ali Khan Mahmudabad**, where the Court granted bail to Prof. Khan but with stringent and **liberty-curtailling conditions** like surrendering his passport and not writing.
- **The author sees this as a dilution of civil liberties**, arguing that the order appears to punish Khan despite no conviction, creating a **climate of fear** and legal uncertainty.
- It reflects a worrying trend where the judiciary, instead of **upholding constitutional safeguards**, seems to **bend to executive pressures** or public sentiment, especially in matters involving **freedom of speech and dissent**.
- **The bail conditions imply guilt without conviction**, undermining the presumption of innocence, and setting a dangerous precedent for **executive overreach**.
- The article criticizes the idea that **patriotism is judged by speech**, calling it **arbitrary and dangerous**, and suggests that the SC is enabling this mentality by **not defending expressive freedoms robustly**.
- Mehta notes that **Article 19 is being eroded in practice**, as citizens are increasingly expected to prove their patriotism, often with vague standards and **at the cost of free expression**.

Analytical Insights for Mains:

- **Civil Liberties vs National Security:** The article highlights the delicate balance between state interest and individual freedom. The bail conditions reflect how national security can be used to **stifle dissent** and how courts may sometimes **fail to act as a bulwark** against this trend.
- **Judicial Ambiguity and Executive Encroachment:** The case illustrates how **judicial discretion**, when not clearly aligned with constitutional morality, can open doors to **executive dominance** in civic life.
- **Chilling Effect on Dissent:** By setting a precedent where even **granting bail seems punitive**, the judiciary risks encouraging **self-censorship and reducing space for academic and political criticism**.
- **Reasserting the Role of the Judiciary:** The article underscores the need for the SC to **reclaim its role as the guardian of civil liberties**, especially in an era where **majoritarian pressures and state overreach** are on the rise.

44. Liberty Is Not Licence – Public Discourse Must Align With Constitutional Responsibility

Relevance to UPSC



Mains:

- **GS Paper 2:** Indian Constitution – historical underpinnings, amendments, significant provisions, Role of media and judiciary in a democracy
- **GS Paper 4 (Ethics):** Responsibilities in public discourse, constitutional morality

Summary of the Article:

- The **First Amendment (1951)** to the Constitution, led by **Jawaharlal Nehru**, was not just legal but a philosophical shift — **tilting the focus from individual liberty to societal order**.
- **Before the amendment**, Article 19(2) allowed only narrow restrictions on speech (defamation, contempt of court, state security).
- The amendment **introduced broader grounds** for restricting speech: **public order, friendly relations with foreign states, decency, morality, and incitement to offences**.
- The shift marked a **departure from libertarian free speech to a controlled model** aimed at protecting national security and unity.
- The article warns against **selective invocation of constitutional rights**, arguing that **freedom becomes dangerous if used with a political agenda**.
- **Judiciary's role:** Justice Surya Kant emphasized that public discourse must align with national resilience and constitutional responsibility.
- **Historical abuses of speech rights** are highlighted (e.g., Emergency, depiction of Ambedkar, banning of scholars), exposing **hypocrisy in defending free speech** only when politically convenient.
- The article stresses that **both free speech absolutism and excessive restriction are problematic**, and calls for **uniform standards of accountability** in public discourse.

Analytical Insights for Mains:

- The **balance between liberty and responsibility** is central to constitutional democracy.
- There is an urgent need to **redefine the boundaries of free speech in the age of social media and political polarization**.
- **Selective outrage** on freedom of expression undermines the **integrity of constitutional rights** and **erodes democratic values**.
- Public discourse, especially from academia, media, and politics, must align with the **constitutional duty to preserve unity, integrity, and sovereignty**.
- Ethical governance demands a **non-partisan commitment** to the spirit of the Constitution over **political expediency**.

45. The maths of how India's coastline lengthened without gaining land

Relevance to UPSC:

Mains (GS-I & GS-III): GS-I: Physical geography – Coastal landforms, coastal erosion, and deposition, **GS-III:** Disaster management (coastal vulnerability), border management, technological advances in mapping

Summary of the Article:

- In **December 2024**, the Ministry of Home Affairs announced that **India's coastline length increased from 7,516.6 km to 11,098.9 km**, a result not of territorial gain but due to **updated measurement methods**.



- This increase results from **using better tools and higher-resolution satellite images (1:4,50,000 scale to 1:20,000)**, which now detect **smaller coastal features** like sandbars, cliffs, and minor curves, especially in **previously under-measured regions** like Andaman & Nicobar and Lakshadweep.
- The phenomenon is explained by the **“coastline paradox”** – a mathematical concept that highlights how **the measured length of a fractal-like object (like a coastline) increases as the measurement scale becomes finer**.
- For example, measuring with a 200-km ruler smooths out inlets, whereas a 1-km ruler captures them, thus increasing total length.
- **India’s coast is not a true fractal but displays fractal-like properties**, meaning it has self-similar features at different scales.
- Modern techniques including **LIDAR, electronic navigation charts, sonar, and drones** have provided more accurate mapping and added previously unmapped features.
- **Implications of a longer coastline** include:
 - **More area to patrol and protect** (national security challenge)
 - **Greater economic zone (EEZ)**, enhancing **fishing rights and disaster preparedness**
 - **More vulnerable coastlines** needing sustainable management strategies

Analytical Insights for Mains:

- The coastline paradox shows how **technological advancement transforms data interpretation and policy planning**.
- The change implies a **larger EEZ under UNCLOS**, giving India more maritime rights and obligations.
- **Security implications** include more areas to safeguard against smuggling, terrorism, and sea-level rise.
- Emphasizes the importance of **accurate geospatial mapping in environmental regulation, disaster management, and marine resource governance**.
- Raises questions about **climate resilience and coastal zone management** in the context of **rising sea levels and urbanisation pressures** on coasts.

46. America against America

Mains: GS Paper II: Governance, International Relations (Impact of internal politics on global education exchange), **GS Paper IV:** Ethics in Public Administration (Autonomy of institutions, Political interference)

Summary of the Article:

- On **May 23**, a federal judge **blocked the Trump administration’s attempt to prevent Harvard from admitting international students**.
- This action followed a **letter from the Secretary of Homeland Security** accusing Harvard of creating an unsafe campus due to **diversity, equity, and inclusion (DEI) policies**, which were claimed to support antisemitism and pro-Hamas sympathies.
- The Trump administration had earlier **frozen \$2.2 billion in federal funding** for Harvard, affecting the Harvard Medical School and TH Chan School of Public Health.
- The article argues this is part of a **broader ideological agenda** to target liberal institutions perceived to be hostile to conservative ideas.
- **Trump's administration, upon returning to office, made sweeping demands** to Harvard including changes in governance, leadership, admission criteria, and even initiated an audit alleging antisemitism.



- The university's new president, **Alan Garber**, resisted yielding to these demands, prompting the administration's stern warning.
- The **crackdown on higher education autonomy** is compared to earlier actions against **Columbia University**, showing a pattern in conservative governance targeting elite educational institutions.
- These actions reflect the **Trump camp's suspicion that elite institutions propagate liberal and progressive values**, and hence must be ideologically aligned or subdued.
- The author warns that such steps risk **damaging the intellectual, academic, and administrative independence** that defines American higher education's global excellence.

Analytical Insights for Mains:

- **Targeting educational autonomy undermines democratic values** and weakens soft power, especially in global academic leadership.
- The article illustrates a **trend of using federal authority to enforce ideological conformity**, which raises ethical concerns.
- Such moves also threaten the **pluralism and diversity of thought** that are fundamental to a vibrant democracy.
- For India, this raises **questions on how political interference in education can set precedents** for authoritarian governance and curtail academic freedom.

47. Cultivating a Global Farm

Mains:

- **GS Paper 3: Agriculture: Export trends, productivity, food security, Economic Development: Trade policy, subsidies, international agreements, Environment: Sustainable agriculture practices**

Summary of the Article

- India's **total exports in FY25** stood at **\$802.93 billion**, with **agricultural exports** contributing **\$52 billion**, up from **\$48.9 billion in FY24** (6.3% increase).
- The **major agricultural export items** in FY25 included: **Rice (24%), Marine products (14.2%), Spices (8.6%), Buffalo meat (7.8%)**
- On the **import side**, agricultural imports totaled **\$38.2 billion** with: **Vegetable oil (45.4%), Pulses (14.3%), Fresh fruits (8.0%)**
- India's **agri-trade surplus** fell sharply from **\$27.7 billion in FY14** to just **\$13.8 billion in FY25**.
- **Basmati rice exports** were down due to weak global demand; **non-basmati rice exports rebounded** after export restrictions were lifted in late 2024.
- The **global softening of agri-prices** and **sluggish domestic production** (especially oilseeds) have led to **increased dependence on imports**.

Analytical Insights for Mains

- **High import dependency** (especially on **edible oils**, where **55–60%** of domestic consumption is met through imports) is a major concern. **Palm oil, soybean oil, and sunflower oil** dominate.
- India must **diversify its oilseed production** and **reduce reliance on imports**. Policies must promote **mustard, groundnut, sesame**, etc., which are more sustainable and cost-efficient.
- The government should **rationalize subsidies** and invest in **R&D, irrigation, climate-resilient practices**, and **infrastructure**.



- A **strategic agri-export policy** is needed to tap global markets and raise **farm incomes**.
- **Yield improvements** (especially in pulses and oilseeds) can significantly reduce imports and increase domestic self-reliance.
- With the **India–UK FTA concluded** and more FTAs expected, India should prepare to benefit from **trade diversification** and **access to high-value markets**.
- To become a **\$100-billion agri-exporter by 2030**, India must grow exports at **9–10% annually**, up from the current 6.3%.

48. Renegotiating Indus Waters Treaty: Way Forward for India

Relevance to UPSC:

- **Mains GS Paper II:** International Relations – India and its Neighbourhood, Bilateral Treaties, Water-sharing disputes, **Mains GS Paper III:** Environmental security, Water Resources Management

Summary of the Article:

- **The Indus Waters Treaty (IWT)** was signed in 1960, brokered by the World Bank, to divide the Indus Basin rivers between India and Pakistan. The **Western Rivers (Indus, Jhelum, Chenab)** were allotted to **Pakistan**, and the **Eastern Rivers (Ravi, Beas, Sutlej)** to **India**.
- **India's Permanent Representative to the UN**, in a recent interview, highlighted the need to **review and modify** the treaty, citing changes in **hydrology, demography, and geopolitical realities**.
- **Under the Treaty, Pakistan received 80% of water** from the total river system. India was **restricted in storage and hydro-power development** on the Western Rivers, though it was granted limited rights.
- So far, **India has only created about 0.7 MAF of storage capacity** (out of a permitted 3.6 MAF). With projects like **Pakal Dul Dam** nearing completion, there is scope to increase storage to 0.8 MAF.
- The **IWT was framed in a different geopolitical context**. Its current structure fails to account for **Pakistan's support for cross-border terrorism** and its **repeated misuse of Article IX** (dispute resolution clause) to stall Indian projects.
- **India's major asks if the Treaty is renegotiated:**
 - Ensure **parity in water rights** with Pakistan.
 - Establish a **basin-wide, integrated river basin management system**.
 - Shift from a **project-based clearance** to a **basin-level clearance** model.
- **India has maintained a bilateral stance**, rejecting third-party intervention. It seeks a **mutual resolution**, unlike Pakistan's tendency to **internationalize disputes**.
- **China's role is also crucial**, as it controls the upper reaches of the Indus in Tibet. China could use water infrastructure as a strategic tool against India, although no active dam-building is currently happening on the Indus in Tibet.

Analytical Insights for Mains:

- The **IWT is among the most enduring water treaties** but has **become outdated** due to climate change, increasing population, and altered geopolitics.
- India needs to **assert its rights** within the Treaty's framework while also **ensuring environmental and strategic safeguards**.



- **Revisiting water-sharing agreements** is vital for India's **water security**, **energy needs**, and **diplomatic leverage** over a hostile neighbor.
- A **comprehensive basin-wide approach** is more sustainable than the current fragmented project-wise model.

49. The Dawn of Autonomous Satellites and the Legal Vacuum Above Us

Relevance to UPSC

- **Prelims:** Science and Technology – developments and applications of AI and satellite technologies
- **Mains:** **GS Paper II:** International Relations, Global Governance, Laws and Institutions, **GS Paper III:** Science and Technology – AI, Cybersecurity, Autonomous Systems, **GS Paper IV:** Ethics of emerging technologies

Summary of the Article

- **Autonomous satellites** powered by **AI** are replacing passive satellites with systems capable of independent decision-making, like **dodging space debris**, **self-repair**, and **target tracking**.
- A malfunctioning AI onboard can **misinterpret benign objects** as threats, potentially causing **collisions** or **military escalations**. The result: **fault attribution** and **accountability** become legally ambiguous.
- **Existing space laws**, such as the **Outer Space Treaty (1967)** and **Liability Convention (1972)**, were not designed for **AI-operated systems**, leaving a **legal vacuum** regarding **jurisdiction**, **responsibility**, and **intent**.
- **Ethical and legal dilemmas** arise from the autonomous nature of such systems, especially when **misjudgments** can escalate into **geopolitical conflicts**.
- The **2024 IISL Working Group's** report highlighted the urgent need for **global certification**, **standard protocols**, and **fault resolution mechanisms** for space-based AI.
- Sectors like **aviation** and **maritime** offer **liability templates**, but their applicability to autonomous space systems remains uncertain.
- There is a call for **shared norms and responsibilities**, as **space militarization** and **AI misuse** pose threats to **international peace**, necessitating **collaborative frameworks**.

Analytical Insights for Mains

- **Ethical issues:** Can AI be held accountable for autonomous decisions? If not, who bears legal liability – the state, the developer, or the operator?
- **Sovereignty challenges:** Misinterpreted AI actions can lead to **violations of sovereignty**, impacting **diplomatic relations**.
- **Policy vacuum:** Current treaties lack clarity on **autonomous decision-making** and **AI-based conflict** situations.
- **Global governance:** Need for **inclusive, multilateral frameworks** to address the **legal, technological, and ethical complexity** of AI in space.
- **Strategic stability:** Potential for **unintentional escalation** and **space weaponization** due to autonomous misjudgments.

50. Focus on heat-resilience despite the monsoon

Relevance to UPSC: **Mains:** GS Paper II: Issues relating to health, development and management of social sector/services, GS Paper III: Environmental degradation, Disaster Management, Climate Change



Summary of the Article:

- The article draws insights from the national conference on climate and health, titled **'India 2047: Building a Climate-Resilient Future'**, highlighting the urgent need for India to develop **heat-resilient public health systems**.
- **Heat extremes** are now a recurring phenomenon and significantly strain the Indian health system.
- Despite early warnings and knowledge, the **response remains crisis-driven** instead of preventive and proactive.
- **Primary healthcare** must be the first line of defence, but it is not yet heat-ready. **ASHA workers**, primary health centres, and wellness centres can play a pivotal role in **early identification, hydration awareness, and patient guidance**.
- Innovative steps like **using WhatsApp groups, door-to-door visits, and hydration kits** have helped cities like Ahmedabad and could be scaled further.
- There is a need to **integrate heat-related care into chronic disease management**, especially for the elderly and those with comorbidities like **diabetes, heart disease, and mental health issues**.
- Clinical protocols must improve:
 - Heat-related illnesses are often missed during routine health checks.
 - There is a need for **standardised diagnosis protocols, 'heat corners' in hospitals, pre-stocked cooling kits, and follow-ups**.
- The crisis cannot be tackled by the health sector alone; it needs:
 - **Urban planning reforms** for better housing and public spaces,
 - **Water security during summers**,
 - **Labour protections** (e.g., regulated outdoor work hours),
 - **Scientific collaboration** for heat forecasting and timely alerts.

Analytical Insights for Mains:

- **Heatwaves are not just environmental hazards, but also a social justice issue.** Vulnerable populations (informal workers, elderly, children in poorly ventilated areas) face disproportionate impacts.
- Current guidance like **'stay indoors'** is **impractical for daily wage workers** and highlights systemic inequity.
- **A proactive shift from reactive emergency response to equity-rooted prevention** is essential. This involves:
 - **Early morning health checks**
 - **Cooling centres for the homeless**
 - **Protective policies for outdoor workers**
- The article urges embedding **climate resilience into public health planning**, science, leadership, and governance.
- A **narrowing window of action** exists as climate events intensify, making this shift **urgent and imperative**.

51. The Nationalism We Forgot

Relevance to UPSC

Mains: GS Paper II: Indian Constitution, Role of Civil Services, Government Policies, **GS Paper I:** Modern Indian History – Freedom Struggle and its legacy, **GS Paper IV:** Ethics, Integrity & Public Life – Ideals of nationalism and political morality

Summary of the Article

The article critiques the **current distortion of Indian nationalism**, contrasting it with the **inclusive and liberal nationalism of India's freedom struggle**. It uses the example of **Ali Khan Mahmudabad's case** to highlight how dissent



and constitutional rights are increasingly being overshadowed by an **intolerant version of nationalism**. This nationalism labels critics and minorities as anti-national and fosters an atmosphere of fear and division.

Key points:

- **Modern nationalism is mimicking aggressive, exclusivist ideologies**, such as German fascism or Israeli ethnonationalism, veering towards a "Hindu Pakistan".
- **Constitutionally protected rights** like **freedom of speech** are being sacrificed in the name of national security.
- The **order in Mahmudabad's case** reveals how labels like "anti-national" are being used to silence dissent and justify targeting minorities.
- The **original Indian nationalism** was **inclusive, pluralistic, and morally grounded**, drawing from leaders like **Jayaprakash Narayan**, who balanced national interest with democratic values.
- This nationalism emphasized **unity among diversity**, using language, religion, and region not to divide but to **create a shared identity**.
- The **freedom movement** fought **external domination and internal oppression**, not just to free a nation but to **liberate its people**.
- In contrast, today's nationalism is about **bullying internally and surrendering externally**, evident in its **hostility toward Pakistan** and **subservience in global forums**.
- There is a **moral and intellectual collapse**, as seen in the **government's pressure on judiciary**, public targeting of dissenters, and **failure to resolve internal disputes**.
- The **legacy of inclusive nationalism** is being replaced by **Hindutva-driven uniformity**, where **dissent is criminalized** and **minorities are othered**.

Analytical Insights for Mains

- The article invites critical reflection on how **national interest is being used to override citizen rights**, a **dangerous precedent for any democracy**.
- It urges a return to the **original ideals of Indian nationalism** which were **liberal, inclusive, and rooted in shared struggle**.
- The **reduction of nationalism to majoritarianism** and **militant posturing** damages both **internal cohesion** and **external credibility**.
- **True nationalism**, as per the freedom movement, involved **holding power accountable**, not enforcing conformity.
- The **disconnect between state and people**, as exemplified in the **state-sponsored labeling of dissenters**, needs to be addressed to **preserve India's democratic fabric**.

52. What monsoon 'onset' means, why it is early

Relevance to UPSC:

Prelims:

- **Syllabus:** Indian Climate, IMD Criteria, Atmospheric Phenomena

Mains: **GS Paper 1:** Indian Geography (Climatology, Monsoon), **GS Paper 3:** Environment (Climate & Weather Patterns)

Summary of the Article:

- The **Southwest Monsoon** arrived in **Kerala on May 24, 2025**, which is **8 days ahead** of its normal onset date (**June 1**), making it the **earliest onset since 2009**.



- **India Meteorological Department (IMD)** declares monsoon onset based on 3 criteria:
 1. **Rainfall:** At least **60% of 14 meteorological stations** in Kerala, Lakshadweep & Karnataka must report **2.5 mm or more rainfall for two consecutive days**.
 2. **Wind Field:** Establishment of **westerly winds** in lower troposphere (up to 600 hPa).
 3. **Heat: Outgoing Longwave Radiation (OLR)** must be **<200 W/m²** over a specific region (5-10°N, 70-75°E).

Analytical Insights for Mains:

- **Reasons for Early Onset in 2025:**
 - **Convection:** Warmer than normal **sea surface temperatures** in the **Arabian Sea and Bay of Bengal**.
 - **Madden-Julian Oscillation (MJO):** Enhanced convective activity in the equatorial Indian Ocean region.
 - **Somali Jet:** Stronger westerly winds from east Africa helped **push moisture-laden winds** into India.
 - **Low-Pressure Area:** A low-pressure system in the **Arabian Sea** accelerated the monsoon's progress.
- **Early onset ≠ Good monsoon:**

An early (or delayed) monsoon onset has **no correlation with the total seasonal rainfall** or its **geographical distribution**.

53. India's New Urban Worry — Rising Overnutrition

Mains: GS Paper 2: Issues relating to health, welfare schemes, regulatory bodies, **GS Paper 3:** Public Health, Non-Communicable Diseases, Urbanisation and its effects, Science & Technology (biotechnology in nutrition).

Summary of the Article:

- A **Nature** article found that **84% of IT employees in Hyderabad had fatty liver (MAFLD)**, and **71% were obese**, revealing a disturbing urban health crisis.
- The **urban nutrition landscape** is paradoxical — while **undernutrition** persists, **overnutrition and obesity are surging**, especially in **urban IT corridors**.
- According to WHO, **non-communicable diseases (NCDs)** accounted for **74% of global deaths in 2019**, rising from 60% in 2000.
- WHO warns that **obesity is rising faster in low- and middle-income countries**, including India.
- India's urban population shows **higher Waist-to-Hip Ratio (WHR)** and obesity, with **Tamil Nadu reporting 46.1% obese urban men and 43.1% women**.
- **The 18 to 59 age group**, especially those in tech jobs, are increasingly vulnerable due to **sedentary lifestyles, unhealthy diets, and stress**.
- Childhood obesity is also rising: the **Lancet** estimates **India's overweight population could hit 850 million by 2025**, up from 450 million in 2010.
- **Processed food consumption** is a key driver; marketing and availability of **ultra-processed foods** have influenced food habits.
- Programs like **Eat Right India** and initiatives such as the **"Eat Right Challenge"** and **8-km health walks** promote awareness.
- However, **fast food outlet proliferation** remains a challenge.
- The **Health Star Rating (HSR)** by FSSAI aims to simplify food choices but faces criticism over effectiveness.
- **Supreme Court** has directed FSSAI to consult scientists and experts to improve food labeling norms.



- Saudi Arabia's NCD strategy is showcased as a model — imposing **sugar taxes**, banning **trans fats**, and enforcing **food warning labels**.
- Indian cities like **Hyderabad, Chennai, and Bengaluru** are under pressure to accommodate a **tech-driven urban economy**, contributing to changing food habits.

Analytical Insights for Mains:

- **Urban overnutrition** reflects a failure in adapting public health policies to rapid lifestyle changes in urban settings.
- There is a need to **integrate urban health policies** with food safety, education, and urban planning.
- Focus should shift from **consumer-level awareness to systemic regulation**, including **clearer labeling**, **taxation on unhealthy foods**, and **urban infrastructure** promoting physical activity.
- **India's double burden** of malnutrition (undernutrition + overnutrition) requires **multisectoral approaches** and **strict regulatory enforcement**.
- Adopting **global best practices** like Saudi Arabia's approach could help counter India's growing NCD burden.

54. Experiential learning: how students can learn more effectively

Mains: GS Paper II: Issues relating to development and management of education, **GS Paper IV:** Application of ethical concepts in teaching and learning

Summary of the Article:

- The current Indian education system is **exam-centric** and **information-heavy**, promoting **rote learning** and **lower-order thinking skills**.
- **Experiential learning (EL)** is advocated as a more effective model. It emphasizes "**learning by doing**", **critical thinking**, **problem-solving**, and **constructivist understanding**.
- EL helps students **develop metacognition**, **integrate knowledge**, and **construct meaning** through experience rather than memorization.
- Tools like **interactive games**, **team projects**, **role-playing**, and **flipped classrooms** encourage deeper learning and student engagement.
- **Implementation challenges** include lack of resources, teacher training, diversity of student backgrounds, and rigid curricula.
- Despite these challenges, EL is essential for preparing students for the real world by enhancing their **social, emotional, cognitive, and cultural intelligence**.

Analytical Insights for Mains:

- **Experiential learning aligns with NEP 2020**, which calls for moving away from rote learning to **competency-based education**.
- It supports **inclusive and equitable learning** by enabling diverse learning styles.
- Critical for developing **21st-century skills** like collaboration, creativity, communication, and critical thinking.
- Policymakers must ensure **teacher training**, **curriculum flexibility**, and **resource support** to successfully implement EL.
- While **one-size-fits-all approaches are ineffective**, EL models must be adapted based on **context and learner diversity**.



55. Needed, a crypto strategy

Relevance to UPSC:

Mains: GS Paper II: International Relations (India-US, India-Pakistan, Indo-Pacific geopolitics), GS Paper III: Science and Technology (Cryptocurrency, blockchain policy), Economic Development

Summary of the Article:

- The article discusses the **emergence of a cryptocurrency collaboration** between **Pakistan** and **World Liberty Foundation Inc (WLFI)** — a US-based firm reportedly connected to **Donald Trump's circle**.
- A **Memorandum of Understanding (MoU)** was signed by WLFI with the **Pakistan Crypto Council**, outlining ambitious plans including:
 - Using **blockchain technology for financial inclusion**
 - **Tokenizing untapped assets** like rare earths
 - **Launching stablecoins for trade and remittances**
 - Positioning Pakistan as a **regional crypto hub**
- While the feasibility of these plans is uncertain, the move signals **Pakistan's digital pivot** which India should not ignore, especially given the **potential geopolitical implications**.
- The article highlights **Trump's renewed interest in reshaping the global financial system**:
 - Formation of a **Digital Asset Markets Group** chaired by **David Sacks**, focused on Bitcoin and AI
 - Creation of a **Strategic Bitcoin Reserve** and **US Digital Asset Stockpile**
 - **Support for lawful, dollar-backed stablecoins** while opposing central bank digital currencies (CBDCs)
 - **Pro-crypto appointments** in Trump's orbit (e.g., Elon Musk, David Sacks)
- The **Indian diaspora's influence in US tech is well-known**, but now **Pakistan's diaspora** is becoming more active — particularly in influencing crypto policy and tech ties with the US.
- There is **concern in India about underestimating Pakistan's technological ambitions**, especially in crypto, where the **science, policy, and diplomacy** intersect.

Analytical Insights for Mains:

- **India needs a coherent crypto strategy** not just for financial regulation but also as part of its **broader strategic outlook**.
- The **Trump-Pakistan crypto alliance** could challenge India's **regional tech leadership**, especially if blockchain is leveraged for financial diplomacy.
- India must **not repeat past mistakes** of ignoring tech-geopolitical trends (as in the case of Pakistan's nuclear development or China's digital initiatives).
- With the **global financial order possibly shifting**, India must be prepared with a **strategic framework** to ensure its **interests are safeguarded** in the emerging **digital economic order**.

56. How FTAs with US, UK, EU could impact India's agriculture trade

Relevance to UPSC:

Mains: **GS Paper III:** Indian Economy – Major crops, marketing of agricultural produce, and issues related to farm subsidies and MSP; effects of liberalization on the economy; WTO and FTA impacts, **GS Paper II:** Bilateral trade agreements and India's foreign policy



Summary of the Article:

- India's agricultural exports rose by 6.4% to \$51.9 billion in 2024–25, from \$48.8 billion in 2023–24.
- Agricultural imports also surged by 17.2%, from \$32.9 billion in 2023–24 to \$38.5 billion in 2024–25.
- The trade surplus narrowed from \$15.9 billion in 2021–22 to \$13.4 billion in 2024–25.
- Key export gains were seen in marine products, non-basmati rice, spices, sugar, and vegetables.
- Key import items remained vegetable oils, fresh fruits, pulses, and spices.
- Top export destinations include the US, China, Bangladesh, UAE, and Vietnam.
- FTAs with the US, UK, and EU are under negotiation, and their impact on Indian agriculture depends on tariff concessions and market access, especially for processed food products.
- India has maintained a large surplus in agri-trade since 2013–14, peaking in 2021–22, but rising imports have narrowed this.

Analytical Insights for Mains:

- Free Trade Agreements (FTAs) with developed countries could offer greater market access for India's processed and high-value agricultural exports, such as marine products, spices, and ready-to-eat foods.
- However, there are concerns about increased imports of subsidized agri-products, especially from the EU and US, potentially hurting Indian farmers.
- Falling global prices of commodities like edible oils (due to better crop output in Brazil and Indonesia) also explain the import surge.
- Trade policy must ensure protection for sensitive sectors while tapping into new markets and addressing sanitary and phytosanitary barriers.
- FTAs must consider India's food security needs, income support systems for farmers, and supply-side competitiveness.

57. A Case of Practical, Pragmatic and Innovative Education

Relevance to UPSC:

Mains Syllabus: GS Paper 2: Issues relating to development and management of education, **GS Paper 3:** Science and Technology – developments and their applications, **Essay Paper:** Education reforms, innovation, employment generation

Summary of the Article:

The article discusses the **New Education Policy (NEP) 2020** as a **long-term structural reform** aimed at enhancing India's global competitiveness, fostering **innovation**, strengthening **industry-academia collaboration**, and improving **student employability**.

Key focus areas of NEP 2020:

- Encouraging originality and indigenous research
- Enhancing constant global competitiveness
- Providing students with multi-career flexibility

Towards Better Employability:

- NEP introduces a **4-year flexible teaching programme** that allows exit and re-entry options.
- Promotes **industry internships** and **academic collaboration** to improve **practical exposure**.



- 224 universities and 101 colleges have started **multidisciplinary degree programmes**.
- Over 167 universities offer **research-intensive undergraduate programmes**.

Global Competition and Indian Education:

- India's position in **QS World Rankings** improved significantly post-NEP.
- Indian universities now feature in the **global top 500** across various disciplines.
- India's **scientific patents filing** rose from 7,405 (2021–22) to 19,515 (2022–23) – a **158% increase**.
- India now ranks **7th globally** in the **Global Innovation Index** (up from 66th a decade ago).

Research and Innovation Ecosystem:

- NEP led to the creation of **AICTE's research-focused schemes** and the **SPARC programme** to enhance global collaboration.
- Focus on **indigenous science and innovation** via the **Indian Knowledge System (IKS)** and projects like **Smart India Hackathon**.

Sustainable Employment:

- NEP recognises **employment as multidimensional**, influenced by macroeconomic and demographic trends.
- From 2018–19 to 2023–24, India's **overall employment rate** remained stable, with some increase in **female participation (30.7%)**.
- Decline in **informal sector jobs** suggests structural changes in the labour market.
- Unemployment remains high among the **educated youth**, especially women (50.3% to 16.68% fall in workforce participation).

Analytical Insights for Mains:

- **NEP 2020 provides a strong policy base** to align education with employment, skill development, and global standards.
- The push for **flexibility in degree programmes** enables wider access and inclusion.
- Emphasis on **research-industry linkages** and **entrepreneurial education** addresses long-standing structural gaps.
- Challenges persist in **sustainable job creation**, especially in **formal sector jobs for educated youth**.
- A transition is visible from **rote-learning to innovation-based learning**, but implementation varies across states and institutions.

58. The Importance of the Deputy Speaker

Relevance to UPSC:

Mains:

- **GS Paper 2:** Indian Constitution – structure, functioning, conduct of business of Parliament, Separation of powers, democratic institutions, accountability mechanisms

Summary of the Article:

- The **Deputy Speaker's position in the Lok Sabha has remained vacant since 2019**, raising serious **constitutional and democratic concerns**.
- The **Deputy Speaker is not merely a substitute for the Speaker**, but an essential pillar for ensuring continuity, neutrality, and accountability in parliamentary functioning.



- As per **Article 93 of the Constitution**, the House shall elect both the Speaker and the Deputy Speaker “**as soon as may be**”, indicating urgency but not setting a strict deadline.
- **Article 94** reinforces the importance of continuity by ensuring the Deputy Speaker remains in office until resignation/removal/disqualification.
- The **Rules of Procedure** of the Lok Sabha (Rule 8) state that the Deputy Speaker shall be elected on a date fixed by the Speaker.
- **Article 180** empowers the Deputy Speaker to discharge the duties of the Speaker in case of vacancy, making the post crucial.
- **Constitutional convention** dictates that the Deputy Speaker’s post is offered to the **Opposition** to ensure bipartisan functioning and democratic balance.
- The **current government has avoided appointing a Deputy Speaker** in both the 17th and seemingly the 18th Lok Sabha, possibly to avoid handing the post to the Opposition.
- This **centralises power in the ruling party** and undermines the **Westminster tradition** of bipartisan cooperation in legislative proceedings.
- The **absence of the Deputy Speaker could cause a constitutional crisis** if the Speaker’s post becomes suddenly vacant.

Analytical Insights for Mains:

- **Democratic Backsliding:** The deliberate delay in appointing a Deputy Speaker reflects an erosion of democratic norms and conventions.
- **Institutional Vacuum:** Without a Deputy Speaker, **parliamentary continuity is threatened**, especially during the absence or resignation of the Speaker.
- **Role of Opposition:** By not giving this position to the Opposition, the **space for dissent and scrutiny weakens**, affecting checks and balances.
- **Need for Codification of Conventions:** The situation underlines the need to **clearly codify constitutional conventions** to avoid future ambiguities and ensure democratic resilience.

59. A Vicious Loop: Multilateral agencies need to introspect about need and justification for aid to Pakistan

Mains: GS Paper 2: International Relations (India-Pakistan relations, role of international organisations), **GS Paper 3:** Economy (external borrowing, fiscal prudence, economic aid, transparency in public finance)

Summary of the Article:

- **Multilateral agencies like the IMF and World Bank continue to extend significant financial support to Pakistan**, despite poor governance, economic mismanagement, and rising defence spending.
- **India recently borrowed around \$8.5 billion from the IMF**, largely using Special Drawing Rights (SDRs); Pakistan has also been a major borrower, raising concerns about the use of such funds.
- **There is a lack of transparency and accountability in how Pakistan uses multilateral aid**, particularly when large sums are spent on defence (about 18% rise in FY 2024-25 defence budget), potentially strengthening its military regime and corruption networks.
- **Pakistan's constitution does not require parliamentary approval for foreign loans**, unlike India where such withdrawals from the Consolidated Fund require legislative scrutiny and CAG auditing.



- **The IMF's Extended Fund Facility (EFF)** is designed to assist countries in balance of payment crises but may **enable fiscal indiscipline** if not monitored well.
- **India has expressed concern** over misuse of global aid by Pakistan, especially in light of **its removal from the FATF grey list in 2022**, a move that India felt lacked sufficient political commitment and robust monitoring.
- **The broader issue raised is whether multilateral lending is inadvertently supporting rogue behaviour** and undermining responsible economic management.

Analytical Insights for Mains:

- **Multilateral aid can create moral hazard** if recipient countries are not held accountable, especially when funds are diverted towards military or non-developmental use.
- **India's demand for greater scrutiny and transparency** in the international financial system reflects its rising global stature and responsible fiscal conduct.
- **There is a need for reform in multilateral lending practices**, especially concerning borrower accountability, internal governance mechanisms, and linkages to tangible development outcomes.
- **Geopolitical biases in aid distribution (e.g., favourable treatment to Pakistan)** can undermine international institutions' credibility and trust.

60. Good news in single digits – India's Poverty Falls Sharply, Inequality Declines

Relevance to UPSC:

Mains: GS Paper 2: Welfare schemes for vulnerable sections, Issues relating to poverty and hunger, **GS Paper 3:** Indian Economy – Inclusive growth and issues arising from it

Summary of the Article:

- The **Household Consumption Expenditure Survey (HCES) 2022–23 and 2023–24** data released by NSO shows a **sharp decline in poverty** and a **reduction in inequality** across India.
- **Poverty Lines (monthly per capita consumption)** were calculated based on Rangarajan Committee norms:
 - Rural poverty line: ₹1,837 (2022–23), ₹1,940 (2023–24)
 - Urban poverty line: ₹2,306 (2022–23), ₹2,376 (2023–24)
- **Key findings on poverty trends (2011–12 to 2023–24):**
 - At ₹1,500 cut-off (2023): **poverty ratio fell to 4.9% in rural areas, 2.4% in urban, and 3.6% for all-India**
 - At ₹1,837/₹2,306 (Rural/Urban): **poverty declined from 19.5% (2011–12) to 8.5% (2022–23) and 6.2% (2023–24)**
 - Overall, **poverty declined by 13.3 percentage points in 11 years, i.e., 1.2 percentage points per annum**
- According to the **World Bank**:
 - **Extreme poverty** (living on <\$2.15/day PPP) in India declined from **16.2% in 2011 to 2.3% in 2022–23**
 - **More than 70 million people** rose above conditions of extreme poverty during this period
 - Those **below lower-middle income poverty line** (\$3.65/day PPP) fell from **61.8% to 28.1%**
- **Inequality Trends:**
 - **Gini Coefficient** declined from:
 - **0.310 (2011–12) to 0.282 (2022–23)** and further to **0.253 (2023–24)** (all-India level)
 - Urban Gini dropped from **0.326 (2011–12) to 0.234 (2023–24)**
 - Decline in rural inequality was modest: from **0.303 to 0.273**



Analytical Insights for Mains:

- **GDP growth-led poverty reduction** shows the role of economic expansion in inclusive development.
- **Sharp decline in inequality**, especially in urban areas, indicates **better distributional outcomes** of growth.
- However, **structural poverty reduction** must still be backed by **social safety nets, employment generation, and public service delivery** to maintain progress.
- The **difference in pace of poverty reduction** between rural and urban areas suggests the **need for targeted rural development** strategies.
- Gini trends reinforce that **inequality control is crucial for sustainable growth and social stability**.

61. Rewriting the Script of Early Childhood Education

Mains (GS Paper II): Issues relating to development and management of education, Government policies and interventions for vulnerable sections, Role of NGOs and public policy in education

Summary of the Article:

- The article discusses the importance of **Early Childhood Education (ECE)** in shaping human capital and breaking the cycle of poverty often referred to as the **"lottery of birth"**.
- Citing **James Heckman's economic model**, the authors argue that **early investments in education yield high returns**, influencing future earnings and life outcomes significantly.
- **India's ECE system faces challenges** such as:
 - **Insufficient instructional time:** Average of only 30 minutes/day in Anganwadis.
 - **Lack of trained ECE teachers:** Only 9% of pre-primary schools have dedicated ECE teachers.
 - **Poor learning outcomes:** Only 15% of children can match objects and just 30% identify numbers correctly.
- The **India Early Childhood Education Impact Study** highlights the lack of foundational skills among young children entering Class 1.
- **Government spending** on ECE is just ₹1,263 per child annually, compared to ₹37,000 per student in school education, showing **severe underinvestment**.
- **States like Uttar Pradesh and Odisha** are taking the lead by hiring 11,000 ECE educators and launching **Balvatikas, Shishu Vatika, and Jadupedi Kits** to improve school readiness.
- **Parent engagement** is identified as a key component. However, **lack of awareness** and **resources** limits their involvement. Programs like **Bal Choupal in Madhya Pradesh** help bridge this gap.
- **Technology interventions** like **WhatsApp and EdTech apps** can support parents in early learning initiatives.

Analytical Insights for Mains:

- **Early Childhood Education** is a **critical investment in human capital** with **multi-generational impacts** on poverty alleviation and employment outcomes.
- **Systemic challenges** such as low funding, lack of trained personnel, and poor monitoring mechanisms must be addressed.
- There is a **need for integrated policy** combining **adequate resources, teacher training, and community engagement** to ensure effective ECE.
- **Public-private partnerships** and **civil society involvement** (e.g., Central Square Foundation, Centre for Civil Society) can support scaling of quality interventions.



- With over a **billion Indian children entering the global workforce by 2047**, improving ECE can reshape India's future economic landscape.

62. The Nature of Escalation

Relevance to UPSC:

Mains: GS Paper II: International Relations – India-Pakistan relations, cross-border terrorism, diplomatic strategy, **GS**

Paper III: Internal Security – Security challenges and their management; role of external state and non-state actors

Summary of the Article:

- The **Operation Sindoor**, a four-night military engagement between India and Pakistan in May 2024, marked the most intense military response since 1971, involving airstrikes on terrorist infrastructure deep inside Pakistan and PoK.
- Since 2016, India's doctrine has shifted towards "**credible deterrence**" by implementing **proactive, calibrated, and cross-border military actions** in response to terrorism, avoiding all-out war.
- The **India-Pak escalation dynamic** has transformed significantly. After Pulwama-Balakot (2019), India adopted **lower thresholds for military action**, indicating **political will to act decisively against terrorism**.
- Prime Minister Modi's 2024 speech emphasized a **zero-tolerance policy** toward terrorism and stressed India's resolve to pursue terrorists across borders.
- The change in doctrine is further explained by Shivshankar Menon's writings, noting India's use of calibrated action to manage escalation without triggering full-scale war.

Analytical Insights for Mains:

- India's emerging doctrine showcases a shift from **strategic restraint to calibrated escalation**, aimed at **deterrence through punitive action** without engaging in full-scale war.
- This strategy has **diplomatic, political, and military components**, reflecting a **comprehensive national security approach**.
- The **linking of Pakistan-based groups** (e.g., Lashkar-e-Taiba, Jaish-e-Mohammed) to state actors redefines the **rules of engagement** and **isolates Pakistan diplomatically**.
- **Challenges remain**, such as preventing uncontrollable escalation and preparing for future cross-border crises while sustaining international support.

63. Drifting Far from Bandung

Relevance to UPSC

- **Mains (GS Paper II – International Relations):** India's role in shaping the post-colonial world order, Changing contours of India's foreign policy, India's diplomatic vision, multilateralism, and moral authority

Summary of the Article:

- The article laments the **absence of official commemoration of the 70th anniversary of the Bandung Conference**, a key moment in post-colonial international diplomacy.
- The **Bandung Conference (1955)**, emerging from anti-colonial solidarity, gave birth to the **Non-Aligned Movement (NAM)**. India played a pivotal role under **Jawaharlal Nehru**, emphasizing **anti-colonialism, sovereignty, peaceful coexistence, and multilateralism**.



- **India's early foreign policy was not transactional but value-driven**, focused on soft power, moral authority, and equitable global relations. Indian universities became intellectual hubs for the Global South.
- The article criticizes **India's current foreign policy trajectory** which is increasingly **short-term, personality-driven, reactive, and transactional**, driven more by domestic political considerations than a coherent moral or strategic vision.
- Citing examples like **the Pakistan conflict and India-US relations**, the article notes a shift where India appears to act based on tactical alignment rather than long-term principles.
- India's image as a principled leader in global South affairs is weakening, while **other actors step in to shape the discourse** in multilateral forum.

Analytical Insights for Mains:

- **India's foreign policy drift from NAM ideals** undermines its credibility as a moral leader of the Global South.
- **Current diplomatic posture lacks coherence**, often appearing transactional rather than guided by enduring principles.
- **Restoring strategic autonomy and consistent multilateral engagement** could help India reclaim its historic leadership.
- The **erosion of "soft power" and intellectual diplomacy** (e.g., influence of Indian academic institutions) indicates a deeper ideological shift.

64. Northeast India: From Periphery to Pivot

Relevance to UPSC:

Mains: GS Paper 2: Governance, Security challenges, Federalism, India and its neighborhood, **GS Paper 3:** Infrastructure, Environment, Energy resources, Economic development, **GS Paper 1:** Regionalism, Cultural diversity

Summary of the Article:

Northeast India is a **strategically vital region** with immense potential to drive India's growth, security, and diplomacy, but it remains hampered by **insurgency, poor infrastructure, ethnic conflicts, and ecological vulnerabilities**. The government is transforming the region through projects like the **Sela Tunnel** and the **Northeast Gas Grid**, yet challenges such as **Nagaland peace issues, interstate border disputes, and environmental protests against hydro projects** persist.

Significance of Northeast India:

- **Strategic Geopolitical Pivot:**
 - Shares borders with **five countries**; crucial to **India's Indo-Pacific and border security strategy**
 - **Doklam standoff** highlighted vulnerability of the **Chicken's Neck**
- **Energy Hub:**
 - Holds **7,600 MMTOE oil and gas**; **hydropower potential over 50,000 MW** in Arunachal Pradesh
 - Important for **India's clean energy transition**
- **Cultural Diversity as a Diplomatic Asset:**
 - **135+ tribes** support cross-border **cultural diplomacy**





- Events like the **North-East Festival** promote MSMEs and tourism
- **Ecological Significance:**
 - Part of the **Indo-Burma biodiversity hotspot**
 - Rich in species like **Hoolock Gibbon, Red Panda, and One-Horned Rhinoceros**
 - Arunachal has **2nd highest forest cover** as per **ISFR 2023**
- **Economic Gateway for Act East Policy:**
 - Projects like **India-Myanmar-Thailand Trilateral Highway** link India to **ASEAN** markets
 - Supports India's goal of a **\$5 trillion economy**

Analytical Insights for Mains:

Key Issues:

- **Ethnic Fragmentation & Insurgency:**
 - Continues to destabilize development (e.g., **Manipur conflict**)
 - **AFSPA** still enforced due to persistent threats
- **Infrastructure Gaps:**
 - Low **digital penetration (43%)**, inadequate **multimodal connectivity**
 - Despite 4,950 km of NHs, **rail and digital networks underdeveloped**
- **Porous Borders:**
 - Enable **illegal immigration, trafficking, insurgency**
 - **Indo-Myanmar fencing incomplete**
- **Environmental Conflicts:**
 - Local opposition to mega hydro projects like on the **Siang River**
- **Boundary Disputes:**
 - Ongoing conflicts, e.g., **Assam-Meghalaya** disputes remain unresolved
- **Human Trafficking & Drug Abuse:**
 - Trafficking and drug use rising, especially in **Manipur**
 - Linked to HIV and social instability

Way Forward / Measures:

- **Peacebuilding and ST Recognition:**
 - Dialogue-based conflict resolution
 - Expedite ST status (e.g., **Mising, Motok, Moran** in Assam), as per **Lokur Committee**
- **Boost Connectivity & Digital Inclusion:**
 - Use **PM Gati Shakti, NIP**, and expand **rural broadband**
- **Inclusive Governance:**
 - Empower PRIs via schemes like **PM-DevINE, DAY-NRLM**
- **Eco-sensitive Industrialization:**
 - Focus on **renewables, organic farming, eco-tourism**
 - Ensure proper **Environmental Impact Assessments**
- **Skill Development:**
 - Align **PMKVY** and **Aspirational Districts Programme** with local strengths
- **Cross-Border Trade & Sub-Regional Cooperation:**
 - Promote **BIMSTEC, free trade zones**, and highway links with **ASEAN**
- **Cultural Entrepreneurship:**
 - Develop **creative industries** and **digital marketplaces** for artisans
- **Climate-Resilient Agriculture:**
 - Promote **precision farming, horticulture**, and **value chains**
- **Anti-Drug Measures:**
 - Set up **rehabilitation centers**, youth engagement, and anti-trafficking enforcement



65. Logistics for India's Global Trade Ambitions

Relevance to UPSC

Mains: GS Paper 2: Governance, Policy Implementation, Role of Government Interventions, **GS Paper 3:** Infrastructure, Growth, Industrial Policy, Science and Technology (Logistics tech)

Summary of the Article

India's logistics sector is pivotal to achieving the **USD 2 trillion export target by 2030** and transforming into a global manufacturing hub. In light of **geopolitical uncertainties** and **supply chain shifts**, efficient logistics has become a key determinant of **trade competitiveness**. While initiatives like **PM Gati Shakti**, **ULIP**, and **LDB** have laid the groundwork, challenges such as **fragmented multimodal connectivity**, **infrastructure bottlenecks**, and **digital skill gaps** remain. Strategic reforms like developing **sector-specific logistics parks**, **AI-powered customs systems**, and **digitally skilled workforce** are essential to modernize the logistics ecosystem. The **logistics sector's market size** is projected to rise from **USD 338 billion (2023)** to **USD 800 billion (2030)**. Government investment of **USD 132.85 billion** and policies like **NLP (2022)** aim to bring logistics costs down from **14% to 8% of GDP**.

Analytical Insights for Mains

Strategic Importance of Logistics:

- **Boosts trade competitiveness:** Cuts costs and improves delivery efficiency.
- **Enables export growth:** Logistics capacity is critical to handle rising trade volumes.
- **Leverages technology:** AI, IoT, and real-time tracking optimize supply chains.
- **Strengthens infrastructure:** Port-led zones and multimodal networks are key.
- **Builds skilled workforce:** Digital training and innovation foster sectoral efficiency.

Key Challenges:

- **Infrastructure gaps:** Slow progress in MMLPs, DFCs; poor last-mile links.
- **Regulatory delays:** Complex approvals and inter-state variations hinder operations.
- **Fragmented digital integration:** Low tech adoption among small players.
- **Skill shortages:** 4.3 million skilled workers needed by 2030.
- **Poor supply chain coordination:** MSMEs hit by high costs and inefficiencies.

Growth Drivers:

- **Rising trade volumes:** Export-import trade expanding rapidly.
- **E-commerce boom:** Surge in demand for last-mile delivery and logistics tech.
- **Infrastructure spending:** Gati Shakti, DFC, NIP enhancing multimodal networks.
- **Digital transformation:** ULIP, LDB, and blockchain driving transparency.
- **National Logistics Policy:** Aims to streamline regulation and reduce costs.

Measures Suggested:

- **Fast-track logistics parks** with integrated services and multimodal connectivity.
- **Skill development centres** aligned with ESG and tech needs.
- **AI-powered customs and e-marketplaces** for digital logistics services.
- **Better port and rail connectivity** through Sagarmala, Bharatmala, and electrification.





- **Expand SEZs and port-led zones**, using geospatial tech for efficient planning.

66. India-Bangladesh Bilateral Dynamics

Relevance to UPSC:

- **Mains (GS Paper II):** India and its neighbourhood relations; bilateral, regional and global groupings; India's foreign policy; regional connectivity and development cooperation

Summary of the Article

India and Bangladesh share a **multidimensional relationship** rooted in shared history, culture, and geography. Bangladesh is a **key strategic partner for India** in South Asia, central to New Delhi's *Neighbourhood First* and *Act East* policies. The partnership spans across **trade, connectivity, energy, security, cultural exchange, and regional cooperation**. However, recent political instability in Bangladesh and **growing Chinese influence** pose new challenges. India's response must focus on **diplomatic maturity, developmental cooperation, and regional leadership** to secure long-term strategic interests.

Analytical Insights for Mains

Significance of India-Bangladesh Relations

- **Shared Historical and Cultural Foundations:** Deep-rooted historical and cultural ties promote **trust and people-to-people connections**.
- **Strong Trade Relations:** Bangladesh is India's **largest trading partner in South Asia** with bilateral trade touching **USD 14.01 billion** (2023-24).
- **Security and Border Management:** 4,096 km border managed via **joint patrols, fencing, and cooperation** on policing, smuggling, and trafficking.
- **Peaceful Dispute Resolution:** Landmark **Land Boundary Agreement (2015)** and **maritime delimitation** bolster stability.
- **Strategic Maritime Cooperation:** MoUs on **blue economy, oceanography**, and access to **Chittagong & Mongla Ports** reduce logistics costs.
- **Multilateral Engagement:** Active roles in **SAARC, BIMSTEC, BBIN, IORA** enhance regional coordination.
- **Connectivity and Transit:** Projects like the **Akhaura-Agartala rail link** and **PIWTT** facilitate Northeast India's integration.
- **Development Assistance:** India has extended over **USD 8 billion in Lines of Credit** for infrastructure and capacity-building.
- **Energy Cooperation:** India supplies over **1,160 MW of electricity**; **Friendship Pipeline** supports diesel transport.
- **Tech and Digital Collaboration:** MoU on **cross-border UPI payments** and joint satellite programs enhance fintech and space cooperation.

Challenges in the Relationship

- **Teesta Water Sharing Deadlock:** **Lack of resolution on river sharing**, especially Teesta, hampers trust.
- **Chinese Strategic Influence:** China's role as **top arms supplier and economic partner** to Bangladesh complicates India's strategic calculus.
- **Cross-Border Security Concerns:** **Illegal migration and Rohingya crisis** strain India's Northeast and border management.
- **Religious Radicalization:** Rising **extremism and minority persecution** threaten internal stability in Bangladesh.
- **Domestic Policy Fallout:** **CAA-NRC** stoke anti-India sentiment in Bangladesh.
- **Trade Restrictions:** **High Bangladeshi transit fees** and India's **garment import restrictions** hinder economic cooperation.
- **Political Instability in Bangladesh:** Governance issues disrupt **bilateral projects and diplomatic continuity**.



- **People-to-People Disconnect:** Visa issues and transport disruptions weaken cultural and educational linkages.
- **Environmental and Hydrological Issues:** Lack of joint river management increases vulnerability to **floods and droughts**.

Way Forward for Strengthening Ties

- **Launch CEPA Negotiations:** Institutionalize trade ties through a **Comprehensive Economic Partnership Agreement**.
- **Operationalize SEZs:** Expedite **Special Economic Zones** in Bangladesh for Indian investments.
- **Resolve Teesta Dispute:** Finalize **Teesta Water Treaty** through **Joint Rivers Commission** mechanisms.
- **Deepen Energy Cooperation:** Enhance **joint power infrastructure and electricity trading** mechanisms.
- **Boost Connectivity Projects:** Speed up **rail, road, and waterway infrastructure** to support commerce and integration.
- **Strengthen Regional Cooperation:** Leverage Bangladesh's position in **BIMSTEC, SAARC, and IORA** to build regional synergies.
- **Revise Developmental Framework:** Enhance **scope and monitoring** of Indian development assistance for better impact.
- **Digitize Border Management:** Introduce **e-immigration tools** to regulate and facilitate safe cross-border movement.
- **Foster Cultural and Youth Engagement:** Expand **scholarships, cultural centers, and student exchanges**.
- **Protect Minority Rights:** Work with Bangladesh to **prevent persecution** and ensure **inclusive governance**.

67. Dynamics of India's Fiscal Decentralization

Relevance to UPSC:

Mains: GS Paper II: Devolution of powers and finances up to local levels and challenges therein, **GS Paper III:** Government budgeting, resource mobilisation, fiscal policy issues

Summary of the Article:

India's fiscal decentralization is pivotal in realizing the vision of **Viksit Bharat by 2047**, especially in a federal setup where States have divergent development needs and trajectories. The **Constitution provides a detailed framework** for the division of tax powers, revenue sharing, grants, and borrowing between the Union and States. However, **persistent vertical and horizontal imbalances**, centralised control over resources, and inadequate fiscal devolution to Panchayats constrain decentralized planning and development.

Constitutional and Policy Provisions:

- **Article 246 & Seventh Schedule:** Division of **taxation powers** between Centre and States
- **Article 246A:** Concurrent taxation on **GST** through CGST, SGST, and IGST
- **Article 270:** Devolution of **Union taxes** to States based on Finance Commission
- **Article 275:** Grants-in-aid for **special needs** of States
- **Article 280:** Establishes **Finance Commission** to address fiscal imbalances
- **Article 282:** Allows **discretionary grants** beyond legislative authority
- **Article 293:** Governs **State borrowing**, with Union control if indebted
- **Local Fiscal Devolution:** Enables **devolution to Panchayats & Municipalities** via State Finance Commissions
- **Exclusion of Cesses & Surcharges** from divisible pool under Article 270
- **Centrally Sponsored Schemes (CSS):** **Conditional funding** in State/Concurrent domains
- **Finance Commission Horizontal Criteria:** Use of **income distance, population, area, forest cover, tax effort** for State-wise allocation



Major Challenges:

- **Vertical Imbalance:** States handle **62% of spending with only 37% of resources**
- **Loss of Tax Autonomy:** GST subsumed key State taxes, reducing flexibility
- **Falling Revenue Share:** Decline from **35% (2015–16) to 30% (2023–24)**
- **Rising Cesses & Surcharges:** Account for **~25% of Union tax revenue**, outside Finance Commission purview
- **Borrowing Limits:** Capped at **3% of GSDP**, restricting fiscal space
- **Delayed GST Compensation:** Liquidity crises and poor fiscal planning in States
- **Increased Dependence on CSS:** From ₹5.21 lakh crore to ₹14.68 lakh crore (2015–2024)
- **Decline in Grants-in-Aid:** From ₹1.95 lakh crore to ₹1.65 lakh crore
- **Horizontal Imbalance:** Better-performing States feel **penalised** due to income distance criterion
- **Uneven Development:** Persisting disparities in infrastructure and inclusion (e.g., Bihar, Jharkhand)
- **Off-Budget Borrowing:** Opaque liabilities weaken budgeting discipline
- **Centralised Expenditure:** Only **22% of transfers are untied**, limiting State innovation
- **Weak Panchayat Devolution:** Incomplete transfer of **29 subjects** under 11th Schedule
- **Institutional Weakness in PRIs:** Dysfunctional DPCs, unstable Panchayat leadership
- **Poor Local Financial Autonomy:** SFC recommendations ignored, GST centralisation

Reforms & Way Forward:

- **Raise States' Devolution:** 16th Finance Commission should increase beyond 41%
- **Include Cesses in Divisible Pool:** To ensure transparency and equity
- **Reform GST:** Ensure timely compensation, consider including petroleum & alcohol
- **Benchmark via Composite Indices:** Use fiscal, social, environmental metrics
- **Relax Borrowing Limits:** Allow flexibility during crises and downturns
- **Strengthen Local Bodies:** Implement Articles 243G, 243H, 243X for full devolution
- **Boost Panchayat Capacity:** Expand Rashtriya Gram Swaraj Abhiyan, improve digital infra
- **Restructure CSS:** Consolidate into fewer, flexible schemes
- **Institutionalise Dialogue:** Revive Inter-State Council, empower NITI Aayog
- **Use HDI for Transfers:** Shift focus from population to human development outcomes
- **Ensure Borrowing Transparency:** Disclose off-budget liabilities within FRBM limits
- **Align Fiscal Rules:** Synchronise Centre-State FRBM Acts
- **Use Fiscal Health Index:** Guide reforms in capital expenditure and debt management

Analytical Insights for Mains:

- Fiscal decentralization in India remains **asymmetrically federal**, with central dominance in both tax revenue and expenditure decisions.
- **True cooperative federalism** demands not only vertical and horizontal equity in transfers but also **empowered local governance**.
- The growing share of **non-divisible revenue (cess, surcharge)** raises concerns of **discretionary and non-transparent transfers**.
- India needs to balance **efficiency with equity** by using outcome-based metrics like **HDI and Fiscal Health Index** for devolution.
- Strengthening **Panchayati Raj Institutions (PRIs)** is essential for **grassroots participatory governance**, especially in the **Amrit Kaal** vision of inclusive growth.



68. Evolving India-Africa Partnership

Relevance to UPSC:

Mains: GS Paper II: India's foreign policy, bilateral relations, **GS Paper III:** Economic development, energy, environment, science & tech, **GS Paper IV (Case Studies):** South-South Cooperation, Global South diplomacy

Summary of the Article:

- **Historical Ties:**
 - India-Africa relations trace back to **ancient maritime trade and shared colonial experiences**.
 - The **Indian diaspora** and **anti-colonial solidarity** laid the foundation for post-independence support and friendship.
- **Post-Independence & Cold War Era:**
 - India supported **African liberation movements**, opposed apartheid, and promoted **Non-Aligned Movement** ideals.
 - Launched the **ITEC program** offering scholarships and technical training.
- **Post-2000s Pragmatic Engagement:**
 - Shift from ideology to **development cooperation**, especially via **lines of credit** and initiatives like the **Pan-African e-Network Project**.
- **Recent Developments (2008-present):**
 - **India-Africa Forum Summit (IAFS)** institutionalized high-level political dialogue.
 - Cooperation deepened in **trade, peacekeeping, counter-terrorism**, and capacity building.
 - **India supported AU's inclusion in G20** during its 2023 presidency.

Analytical Insights for Mains:

Strategic Significance of Africa:

- **Maritime Security:**
 - **Africa's Indian Ocean presence is vital** for securing sea lanes.
 - India's **naval base in Mauritius (2024)** exemplifies this outreach.
- **Economic Growth & Trade:**
 - **Bilateral trade touched \$100 billion**, with a **\$200 billion target by 2030**.
 - Africa provides **critical minerals (e.g., cobalt, copper)** and fuels for India's clean energy shift.
- **Development & Capacity Building:**
 - India extended **\$12 billion lines of credit**, launched **IIT Zanzibar**, and supports Agenda 2063.
 - **Human capital investment aligns with Africa's industrial goals**.
- **Diplomatic & Global Governance:**
 - India's **G20 move** and **WTO coordination with Africa** **boost equitable global order**.
 - Enhances India's **Global South leadership**.
- **Technology & Innovation Partnership:**
 - India is a key partner in **digital infrastructure, fintech, e-governance**, and **solar energy** projects.
 - **\$2 billion commitment** via **International Solar Alliance**.

Challenges Hindering India-Africa Cooperation:

1. **Strategic Inertia:**
 - Delay in hosting IAFS shows **lack of diplomatic continuity**, especially compared to China/US/EU summits.
2. **Security Volatility:**
 - **9 coups (2020–2023)** and terrorism make long-term engagement difficult.
3. **Infrastructure Gaps:**
 - Colonial-era infrastructure **limits intra-African trade**, affecting India's market access.
4. **Financial Constraints:**



- **Debt-to-GDP doubling in Sub-Saharan Africa** undermines project sustainability despite Indian credit.
- 5. **Multipolar Competition:**
 - China's BRI and US/EU influence **overshadow India's modest presence**.
- 6. **Healthcare & Regulatory Issues:**
 - **Limited African manufacturing** and fragmented systems hinder scaling medical cooperation.

Measures to Enhance India-Africa Ties:

- **Establish Strategic Partnership Forums** with **multi-stakeholder engagement** (govt, private, civil society).
- Promote **technology transfer through innovation hubs**, modeled after **IIT Zanzibar**.
- Lead **infrastructure development via PPPs**, aligned with **AfCFTA**.
- Innovate **financial tools** like **diaspora bonds, green bonds, and blended finance**.
- Deepen **security cooperation within AU-led frameworks**, expand peacekeeping, cybersecurity support.
- Institutionalize **youth training, scholarships, and startup incubators**.
- Align with **Africa's green agenda** through **solar, climate-smart agriculture, and water-efficient tech**.
- Create a **Pan-African Digital Public Infrastructure Consortium**, modeled on **India Stack**.
- Shift to **results-based development cooperation**, enabling **co-monitoring and evaluation frameworks**.

69. HDR 2025 & AI-Driven Human Development

Relevance to UPSC:

Mains: **GS Paper II:** Human Development, Governance, Welfare Schemes, Role of Civil Society, **GS Paper III:** Role of Technology, AI for Development, Inclusive Growth, **GS Paper I (Society):** Poverty and Developmental Issues

Summary of the Article:

The **Human Development Report (HDR) 2025**, released by **UNDP**, highlights **Artificial Intelligence (AI)** as a transformative tool for advancing **human development**, particularly in **healthcare, education, and governance**.

India improved its **HDI ranking from 133 (2022) to 130 (2023)**, with an HDI value of **0.685**, nearing the **high human development threshold (≥ 0.700)**. Despite progress in life expectancy, education, and income, **inequality, gender gaps, and digital skill deficits** remain key barriers.

Globally, **human development progress is stagnating**, and the report calls for **human-centric AI policies** to ensure equitable development outcomes.

Analytical Insights for Mains:

What is the HDI?

- A **composite index** by **UNDP**, introduced in 1990 by **Mahbub ul Haq** and **Amartya Sen**.
- **Three dimensions:**
 - **Health:** Life expectancy at birth
 - **Education:** Mean & expected years of schooling
 - **Standard of Living:** GNI per capita (PPP-adjusted)

Why is HDI significant?

- **Holistic metric** beyond GDP—measures **well-being and quality of life**
- Aids in **policy planning and international comparisons**
- **Benchmarks SDG progress**, guides **aid allocation**, and empowers **civil society accountability**

Key Highlights of HDR 2025

Global:

- **Stalled human development**—lowest growth since 1990 (excluding 2020–21).
- **Top HDI:** Iceland (0.972); **Bottom:** South Sudan (0.388)



- **AI Adoption:** 1 in 5 people globally use AI tools; **concerns over job displacement** co-exist with optimism about new opportunities
- Warns of **widening inequality** between high- and low-HDI countries

India-Specific:

- **HDI Rank:** 130 (2023), HDI value 0.685
- **Life Expectancy:** Increased from **58.6 years (1990)** to **72 years (2023)**
- **Education:** Mean schooling rose from **8.2 to 13 years**
- **GNI per capita (PPP):** Increased from **\$2,167 to \$9,046** (1990–2023)
- **135 million people** exited multidimensional poverty (2015–2021)
- **AI Leadership:** India has **highest AI skill penetration**; domestic AI research has grown
- AI innovations like **Bhashini** and **MuleHunter.AI** show public sector adoption

Major Challenges for India's Human Development

- **HDI inequality loss: 30.7%**, one of the highest globally
- **Low female workforce participation (41.7%)**, limited representation
- **Severe digital skills deficit**, <5% students ready for tech adoption
- **Low public investment:** Health (3.8% of GDP), Education (4.6% of GDP)
- **Economic vulnerability** due to **low diversification**
- **Technosolutionism without institutional readiness** risks deepening inequality

How Can AI Advance Human Development?

- **AI should complement, not replace, human abilities**—freeing people to focus on creativity and innovation
- In **healthcare**, AI can cut service costs, improve diagnostics, and reach remote areas
- In **education**, AI can personalize learning, boost literacy, and assist teachers
- In **governance**, AI ensures efficient service delivery and fraud detection (e.g., **MuleHunter.AI**)
- To avoid **AI-driven inequality**, digital infrastructure and skills training must reach the poor
- **Global AI cooperation** and **human-centered AI policies** are essential for equitable innovation

Way Forward for India:

- **Build inclusive digital infrastructure** to ensure universal AI access
- **Invest in human capital**—basic education, vocational and digital training
- **Tailor tech interventions** to local needs—no one-size-fits-all approach
- **Promote economic diversification** to reduce overdependence on agriculture
- **Strengthen public institutions** for effective AI governance
- **Adopt ethical AI principles**—fairness, transparency, and accountability

Conclusion:

India's rise in HDI is noteworthy, but **inequities in access, gender gaps, and digital divides** remain barriers. The **HDR 2025** sees **AI as a catalyst** for inclusive development—but warns that **its benefits must be distributed equitably**. For India to sustain progress, it must **invest in human capability, infrastructure, and ethical tech governance** to ensure **AI empowers all, not just a few**.

70. Modernising India's Defence

Relevance to UPSC:

Mains: GS Paper II: Governance – Security challenges and their management in border areas. **GS Paper III:** Security – Role of external state and non-state actors in creating challenges to internal security, Internal Security – Terrorism,



Insurgency, Cyber Security, Science & Technology – Indigenisation of technology and developing new technology,
Economic Development – Role of Defence Sector in Economy

Summary of the Article:

The recent **Pahalgam terror attack** and India's retaliatory **Operation Sindoor** have spotlighted the need for **comprehensive defence modernisation**. India is focusing on **indigenisation, private sector engagement, R&D boost, defence diplomacy, and armed forces modernisation** to ensure strategic preparedness and self-reliance.

Analytical Insights for Mains:

Major Developments in India's Defence Sector:

- **Indigenous Defence Production Surge:**
 - ₹1.27 lakh crore worth of indigenous production in FY 2023–24 (↑16.7% from previous year)
 - **65% of defence equipment now produced domestically**
 - Driven by **Positive Indigenisation Lists** under *Make in India*
- **Defence Exports Expansion:**
 - ₹21,083 crore in FY 2023–24; **30x growth over a decade**
 - India exports to **100+ countries**, major buyers include **USA, France, Armenia**
 - Target: ₹50,000 crore in exports by 2029
- **Technological Advancements in Defence R&D:**
 - Platforms like **iDEX and TDF** enable **MSMEs/startups** to innovate
 - 619 startups working with defence R&D institutions as of Feb 2025
- **Defence Industrial Corridors (DICs):**
 - Two corridors in **UP and Tamil Nadu**, with ₹8,658 crore invested so far
 - Aiming for ₹53,439 crore investment to boost manufacturing
- **Modernisation of Armed Forces:**
 - Major procurements: **LCH Prachand (₹62,700 crore)**, **ATAGS, SCALP, HAMMER, Loitering Munitions**
 - Precision weapons used in **Operation Sindoor** show enhanced capability
- **Strategic Defence Diplomacy:**
 - BrahMos export to Indonesia (₹3,800 crore)
 - Participation in multilateral exercises with **Japan, Philippines, Malaysia**
- **Indigenisation of Critical Platforms:**
 - **INS Vikrant** – 76% indigenous content, symbol of naval self-reliance
 - **T-90 Bhishma overhaul** demonstrates lifecycle management commitment
- **Defence Testing Infrastructure:**
 - 7 facilities approved under **DTIS**, focusing on UAVs and EW systems

Key Challenges Confronting India's Defence Sector:

- **Technological Gaps & Import Dependence:**
 - **36% of procurement budget still allocated to imports (2023)**
- **Bureaucratic Delays in Procurement:**
 - Delays in projects like **Rafale & Scorpene** due to systemic inefficiencies
- **Insufficient Budget for Modernisation:**
 - Only **₹1.8 lakh crore out of ₹6.81 lakh crore** allocated for modernisation
 - DRDO gets just **3.94%** of the total defence budget
- **Limited Private Sector Role:**
 - Private sector contributes only **21% of total defence production**
- **Export Market Penetration Issues:**
 - Exports still **far below** global leaders like **USA, Russia, China**
 - Tejas yet to gain major export contracts



- **Cyber & Electronic Warfare Vulnerability:**
 - India's EW & cyber defence lag behind countries like **China**
 - E.g., **2020 Mumbai power grid attack** linked to foreign cyber actors
- **Internal Security Challenges:**
 - **Pahalgam attack, Northeast insurgencies** (e.g., Manipur conflict) strain defence resources
- **Lack of Integrated Defence Strategy:**
 - **Integrated Theatre Commands** delayed despite creation of CDS

Recommendations to Strengthen India's Defence Sector:

- **Boost Defence Tech Innovation:**
 - Invest in **AI, quantum computing, autonomous systems**
 - Collaborate with global tech leaders and establish dedicated research hubs
- **Public-Private-Academia Synergy:**
 - Create innovation labs and incentivize **start-ups & MSMEs**
 - Facilitate co-development and access to procurement contracts
- **Defence Skill Development Program:**
 - Launch **Defence Talent Academy** with top-tier institutes
 - Focus on **R&D, cyber warfare, advanced engineering skills**
- **Procurement Reforms:**
 - Digitize procurement, fast-track approvals, and reform **Defence Acquisition Procedure (DAP)**
 - Prioritize **"Buy Indian"** for better efficiency and quality control
- **Defence Export Expansion:**
 - Identify **new markets** (Africa, SE Asia, Latin America)
 - Use **multilateral defence forums** to improve visibility and access
- **Create Defence Innovation Zones (DIZs):**
 - Develop zones focused on **drones, cyber defence, satellite tech**
 - Offer tax incentives, R&D grants
- **Strengthen Cybersecurity Architecture:**
 - Establish **National Defence Cyber Command (NDCC)**
 - Integrate cyber warfare into military training
- **International Industrial Collaboration:**
 - Pursue **co-development** and **tech transfer** with OEMs in missile, naval, aerospace sectors

71. Transforming India's Gig Economy

Relevance to UPSC

Mains: GS Paper 3: Employment, inclusive growth, informal sector reforms, **GS Paper 2:** Government policies and interventions, role of state policies, **Essay:** Digital economy, future of work

Summary of the Article

India's **gig economy** is expanding rapidly, projected to employ over **12 million workers by 2025** and **23.5 million by 2029-30** (NITI Aayog). While it offers **job flexibility, digital inclusion, and entrepreneurial freedom**, it also exposes workers to **low wages, lack of social security, and exploitative work conditions**.

Key roles played by the gig economy in India's growth:

- **Job Creation & Flexibility:** Absorbs underemployed youth with short-term, flexible jobs.
- **Transition from Informal Sector:** Acts as a bridge from unstructured informal employment to platform-based earnings.
- **Fosters Innovation:** Promotes entrepreneurship with self-employment on digital platforms.



- **Accelerates Digital Penetration:** Drives growth in **digital payments and e-commerce**.
- **Tax Revenue Generation:** Platforms contribute via **formalized payment channels and worker registrations** (e.g., e-Shram).
- **Empowers Marginalized Groups: Women (28% of gig workers)** and rural populations gain access to income through platform-based work.

Analytical Insights for Mains

Challenges:

- **Lack of Social Security:** 90% lack financial protection; recent AB-PMJAY inclusion is limited.
- **Income Instability:** Most workers earn **below minimum wages** (₹15,000–20,000/month).
- **Exploitative Conditions:** Long hours, pressure to meet targets, mental and physical stress.
- **No Legal Protection:** Gig workers not fully covered under labor laws despite the 2020 Code on Social Security.
- **Digital Divide:** Limited access and skills in rural areas exclude many from gig benefits.
- **Arbitrary Deactivations & Harassment:** High levels of account deactivation and customer misbehavior without redressal.

Reforms & Recommendations:

- **Comprehensive Legal Framework:** Define rights, include minimum wage and working hour protections.
- **Portable Social Security:** Ensure **transferable benefits** like health insurance and pension.
- **Digital Literacy Programs:** Target rural workers with platform-based technical skill modules.
- **Robust Grievance Redressal:** Mandate fair redress mechanisms for disputes and deactivation issues.
- **Incentivize Compliance:** Offer tax breaks for platforms meeting welfare norms.
- **Expand e-Shram Portal:** Link digital identity with welfare benefits and employment tracking.
- **State-Level Innovations:** Encourage local laws like **Rajasthan's Platform-Based Gig Workers Act** for customized gig worker welfare.

72. Active Empowerment of Specially-abled in India

Relevance to UPSC:

- **Mains:**
 - *GS Paper II:* Welfare schemes for vulnerable sections, mechanisms for better service delivery. *GS Paper I:* Social empowerment, *GS Paper III:* Inclusive growth, *GS Paper IV:* Ethics of inclusivity, social justice

Summary of the Article:

Tamil Nadu's pioneering legislation guaranteeing **representation of persons with disabilities (PwDs) in local bodies** sets a transformative precedent for inclusive governance in India. This initiative **elevates PwDs from marginalization to leadership**, aligning with constitutional ideals of **equality, dignity, and democratic participation**. It underscores the importance of **empowerment through representation**, rather than tokenism, and establishes a **replicable model for other states**.

Key national provisions already exist, including:

- **Constitutional guarantees** (Articles 14, 15, 16, and 41),
- The **Rights of Persons with Disabilities (RPwD) Act, 2016**, which:
 - Expanded disability categories to **21**,
 - Mandated **4% job reservation** and **5% educational reservation**,
- Schemes like **Accessible India Campaign, DDRS**, and the **National Trust Act, 1999**.

Despite these, PwDs face major challenges:

- **Barriers to education** (1 in 4 disabled children aged 5–19 never attended school),



- **Low employment rates** (only **36% employed**, with women at just **23%**),
- **Inaccessible infrastructure**, especially in courts and rural India,
- **High healthcare costs** (PwD households spend ~**20%** of their consumption on disability),
- **Social stigma and low political participation**,
- **Limited access to assistive technologies** (only **<10%** coverage),
- **Poor implementation of social welfare schemes**.

Analytical Insights for Mains:

- **Need for Structural Reform:**
India's PwD policy needs stronger **implementation mechanisms**, not just progressive legislation. **State-level innovations** like Tamil Nadu's can redefine inclusion at the grassroots.
- **Inclusive Infrastructure is Non-Negotiable:**
Despite **Accessible India Campaign**, only **3%** of public buildings are fully accessible. **Rural India** remains critically underserved.
- **Policy Suggestions Include:**
 - **Universal design standards** for infrastructure and regular audits,
 - **Inclusive education policies**, with incentives for schools and specialized teacher training,
 - **Private sector mandates and incentives** for hiring PwDs,
 - **Skilling programs** customized for various disabilities,
 - **Stronger enforcement** through a **dedicated disability commission**,
 - **Support for PwD entrepreneurs**, including loans, SHGs, and platforms,
 - **Awareness campaigns** and cultural inclusion via media and education,
 - **Expanded rehabilitation services** and **inclusive health insurance**.
- **Role Models and Representation:**
Celebrating achievers like **Preethi Srinivasan** and media like **Shark Tank India's "Divyang Special"** is vital to normalize inclusion.
- **Alignment with SDGs:**
The initiative aligns with **SDG 10 (Reduced Inequalities)** and **SDG 16 (Peace, Justice & Strong Institutions)**, reinforcing India's international commitments.

73. Unlocking India's Industrial Potential

Relevance to UPSC:

Mains: GS Paper III: Indian Economy – Industrial Growth, Infrastructure, Investment Models, Inclusive Development,

GS Paper II: Governance – Ease of Doing Business, Regulatory Reforms

Summary of the Article:

India's industrial growth decelerated to **4% in 2025**, the lowest in four years, primarily due to **sluggish global demand**, **MSME distress**, and **export stagnation**. Key factors fueling industrial potential include **government policies (PLI, Make in India)**, **rising investments**, **digital transformation**, **domestic consumption**, and **infrastructure push**. However, industrial momentum is restrained by **global uncertainties**, **logistics bottlenecks**, **rural demand slowdown**, **regulatory hurdles**, **skills mismatch**, **environmental concerns**, and **global competition**.

Analytical Insights for Mains:

Key Drivers of Industrial Growth in India:

- **Government Policy Support:**
 - **PLI & Make in India** attracted **Rs. 14.45 lakh crore FDI** in manufacturing.
 - National Manufacturing Mission targets **25% GDP share** from manufacturing.
- **Investment Surge:**



- **Rs. 37 lakh crore** domestic investment in FY 23-24.
- Sectors like **automobiles, electronics, and pharma** led FDI inflows.
- **Technological Transformation:**
 - Industry 4.0 and **AI-driven efficiency** lifted HSBC **Manufacturing PMI to 59.1** (16-year high).
 - **17.5% CAGR** in electronics manufacturing (FY15–24).
- **Consumer Demand:**
 - Expanding **middle class** to be 2nd-largest global consumer base by 2030.
 - **Consumer durables** grew from 3.6% (FY24) to **8% (FY25)**.
- **Infrastructure Boost:**
 - Smart cities, logistics corridors, highways, and rural housing drive **demand for steel, cement, and logistics**.
 - **Crude steel production** rose by 3.3% in FY25.
- **Strategic Trade & Logistics:**
 - **PM Gati Shakti & National Logistics Policy** are optimizing trade infrastructure.
 - **Mobile exports surged 92%** to US\$5 billion in FY24.
- **Sustainability Push:**
 - **Rs. 20,000 crore** budgeted for **solar and nuclear energy** in FY26.
 - **EVs & green technologies** gaining traction under **PM E-DRIVE**.

Major Roadblocks to Industrial Growth:

- **Global Headwinds:**
 - IMF cut India's FY26 growth forecast to **6.2%**.
 - **\$14 billion export loss** projected due to **reciprocal tariffs**.
- **Rural Demand Stress:**
 - **Higher rural inflation (8.65%)** shrinks consumption.
 - Widening urban-rural divide affects **non-durable goods sectors**.
- **Logistics & Infra Gaps:**
 - India's **logistics cost (14–18% of GDP)** remains high vs 8–10% in developed economies.
- **Regulatory & Credit Barriers:**
 - **MSMEs** face issues with clearances, compliance, and **access to credit**.
 - Economic Survey 2024–25 stresses **need for deregulation**.
- **Skilled Labor Shortage:**
 - **29 million shortfall** in skilled workers.
 - Despite PMKVY training 1.4 crore people, industrial skill needs **outpace supply**.
- **Environmental Costs:**
 - Over **55% energy still coal-based**—a roadblock to **net-zero goals**.
 - Green manufacturing suffers from **high initial costs** and slow adoption.
- **Global Competition:**
 - India's global manufacturing share at **2.8%**, lags behind China & Vietnam.
 - Exports more raw materials (like iron ore) than finished goods.
- **Startup Misalignment:**
 - Overfocus on **low-impact sectors (e.g., instant delivery)**.
 - Lack of push toward **semiconductors, AI, robotics, and 3D manufacturing**.



Way Forward: Strategic Measures to Boost Industrial Growth

1. Accelerate Industry 4.0:

Broaden **AI, IoT, automation adoption**; offer **tax incentives** for digital transformation, especially for **MSMEs**.

2. Infrastructure & Logistics Reform:

Promote **multi-modal logistics parks**, smart industrial corridors, **public-private partnerships**.

3. Targeted Skill Development:

Collaborate with industry for **sector-specific certifications** in **AI, robotics, and cloud computing**.

4. R&D and Startup Realignment:

Invest at least **2% of GDP** in R&D; incentivize **deep-tech startups** (semiconductors, green tech, etc.).

5. Boost Rural Demand:

Strengthen **MGNREGA**, **direct benefit transfers**, and **rural infrastructure** (as seen in *Panchayat* series realities).

6. Green Industrialization:

Support **energy-efficient tech**, **circular economy**, and **PLI for clean tech** adoption.

7. Ease of Doing Business:

Create **one-stop digital portals**, simplify approvals, and **reduce regulatory friction**.

8. Expand MSME Financing:

Promote **fintech lending**, enhance **credit guarantee schemes**, and leverage tools like **SBI's 59-minute loan scheme**.

9. Trade and Market Access:

Fast-track **FTAs**, remove non-tariff barriers, and increase **export competitiveness**.

10. Rural Industrialization Push:

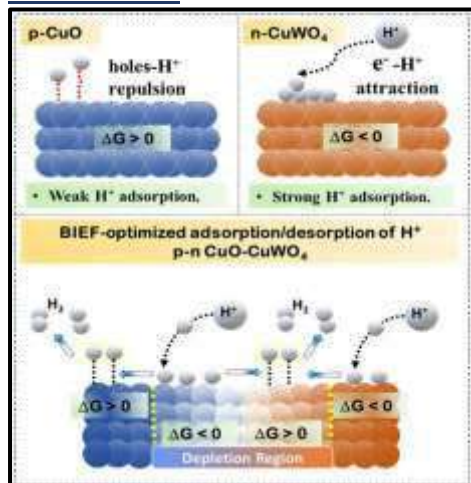
Leverage **PURA model** for **agri-processing** and **food-tech** units in rural areas to reduce urban-rural imbalance.



PRELIMS BOOSTER & PIB COMPILATION (THE HINDU & INDIAN EXPRESS)

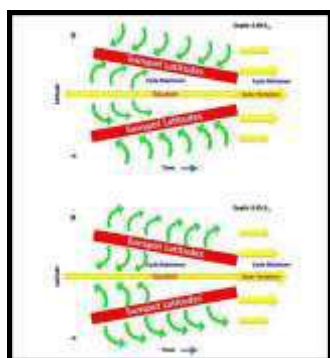
1ST MAY

1. New Approach for Green Hydrogen Production



A Copper Tungsten Oxide (CuWO_4)–Copper Oxide (CuO) heterostructure enhances Hydrogen Evolution Reaction (HER) via a Built-In Electric Field (BIEF). Formed by growing CuWO_4 nanoparticles on a $\text{Cu}(\text{OH})_2$ precursor, creating a p–n junction with asymmetric electron distribution. A Gibbs Free Energy (ΔG) gradient at the CuO – CuWO_4 interface improves proton adsorption at CuO and desorption at CuWO_4 . This reflects negative cooperativity, boosting desorption efficiency in alkaline conditions. Green hydrogen is zero-emission hydrogen produced using renewable-powered electrolysis. Main production methods: Alkaline, PEM, and Solid Oxide Electrolysis (SOEC).

2. Near-Surface Shear Layer (NSSL)



The Near-Surface Shear Layer (NSSL) lies beneath the Sun's surface, extending about 35,000 km deep. It shows rapid decrease in angular velocity, varying by depth, latitude, and solar activity. Plasma flows converge at sunspot latitudes but reverse midway in the NSSL, forming large circulation cells. These flows are influenced by solar rotation and Coriolis force but do not cause torsional oscillations. Helioseismology using SDO-HMI and GONG data confirmed findings through 3D velocity maps.

3. WAM! (WAVES Anime & Manga Contest)



WAM! (WAVES Anime & Manga Contest) is India's first national initiative to promote original Indian anime, manga, webtoons, and cosplay. It is organized by the Ministry of Information and Broadcasting (I&B) and the Media & Entertainment Association of India (MEAI), culminating in a national finale from May 1–4, 2025 at Jio World Convention Centre, Mumbai. WAVES 2025 is a major summit for India's Animation, Visual Effects, Gaming, Comics, and Extended Reality (AVGC-XR) sector under the theme "Create in India, Create for the World." It includes global collaborations, Create in India Challenges (CIC), and showcases in media, artificial intelligence (AI), augmented reality (AR), virtual reality (VR), and extended reality (XR).

4. Brain-Computer Interface (BCI)



A Brain-Computer Interface (BCI) enables **direct communication between the brain and external devices**. It decodes brain signals to control machines and restore lost functions in neurological disorders. **Early BCIs had limited vocabulary, slow speed, and low accuracy**. Working involves implanted sensors, signal decoding via machine learning, virtual training, and real-world task performance. **BCIs also help restore speech in conditions like Amyotrophic Lateral Sclerosis (ALS)** using neural networks and speech avatars. **One ALS patient achieved 62 words/min communication speed**.

5. AIM4NatuRe Initiative



A global **Food and Agriculture Organization (FAO)-led initiative (2025–2028)**, funded by the **United Kingdom** (GBP 7 million, total USD 9 million). **Aims to help countries monitor and report on ecosystem restoration**. Supports Target 2 of the Kunming-Montreal Global Biodiversity Framework (GBF) – **restoring 30% of degraded ecosystems by 2030**. Uses advanced technology, standardized data, and capacity building. **Covers forests, wetlands, grasslands, marine, and agricultural ecosystems**. Part of FAO's Action Against Desertification through AIM4Forests Programme. **Promotes biocentric restoration and supports Indigenous Peoples**. Provides Framework for

Ecosystem Restoration Monitoring (FERM) tools and guidance.

6. Raghuji Bhosale I (1695– 1755)

He was the founder of the **Nagpur-based Bhosale dynasty** and a prominent Maratha general during the reign of **Chhatrapati Shahu Maharaj**. Impressed by his bravery and military acumen, he was honoured with the title '**Senasaheb Subha**' by **Chhatrapati Shahu Maharaj**. Raghuji led pivotal military campaigns in Bengal in 1745 and 1755, greatly expanding the Maratha Empire's territory into Bengal and Odisha. He also **defeated Nawabs of Kurnool and Cuddapah**, extending Maratha influence in South India.

7. Muziris Heritage Project

The Leader of Opposition in the Kerala Assembly recently acknowledged **historian M.G.S. Narayanan as a key force behind the Muziris Heritage Project**, despite his theoretical differences.

About the Project

The Muziris Heritage Project (MHP), launched in **2009**, is one of India's largest heritage conservation initiatives. It is **jointly implemented by the Government of Kerala and the Union Government**, with support from UNESCO, aiming to **preserve a cultural legacy over 3,000 years old**. The aim of the project is to **restore and promote Muziris, an ancient maritime trade hub and cultural crossroads**.

8. Gyan Post

It is a **new India Post service** which will provide affordable delivery of **educational, social, cultural, and religious books across the country**. It will use **trackable surface transport to keep costs low and ensure accessibility**, reflecting a commitment to bridging educational gaps regardless of location or **affordability**. **Only printed materials with clearly marked publishers or printers will be eligible**. The services will be started from **1st May**,

9. What is the National Internet Exchange of India (NIXI)?

NIXI is a **not for profit Organization under section 8 of the Companies Act 2013**, and was registered in 2003. It was set up for **peering of Internet Service Providers (ISPs)** among themselves for the purpose of **routing the domestic traffic within the country**, instead of taking it all the way to US/abroad, thereby resulting in better quality of service and reduced bandwidth charges for ISPs by saving on international bandwidth.

MAY 2

1. Global Antibiotic Research & Development Partnership



GARDP is a **not-for-profit organization developing antibiotics for drug-resistant bacterial infections**. It focuses on public health needs to address Antimicrobial Resistance (AMR) and ensure long-term access to essential antibiotics. Established by the **World Health Organization (WHO) and the Drugs for Neglected Diseases initiative (DNDi)** under the Global Action Plan on AMR (2015). **Legally set up in Geneva, Switzerland, in 2018** as an independent foundation. Works with public and private partners to speed up global antibiotic development and access.

2. NOTAM (Notice to Air Mission)



NOTAM (Notice to Air Mission) informs pilots of **changes in aeronautical facilities, services, or hazards**. Issued by national aviation authorities for events like **airshows, VIP flights, runway closures, and military exercises**. Encoded for clarity and

precision, but generally understandable. Shared rapidly with relevant personnel when seven days' notice is not possible. Accessible via online tools and aviation services. **Reviewing NOTAMs is essential for safe and informed flight operations.**

3. Red-Crowned Roofed Turtle



Scientific Name: Batagur kachuga

Common Name: Red-Crowned Roofed Turtle (Bengal Roof Turtle)

Habitat: Native to **India, Bangladesh, and Nepal**; mainly found now in the National Chambal Sanctuary

Physical Features: Medium-sized; up to 56 cm, 25 kg; males are smaller; reddish-orange head with black crown; greenish-brown carapace with yellowish patterns

Diet: Omnivorous

Conservation Status:

IUCN: Critically Endangered

WPA, 1972: Schedule I

CITES: Appendix II

4. Natural hydrogen



Natural hydrogen (white hydrogen) is **naturally occurring molecular hydrogen found in Earth's crust**. Formed by **serpentinisation, radiolysis, and organic matter decomposition**. It is a clean, low-cost, low-emission energy source that could reduce global carbon emissions. **Cheaper than green hydrogen (potentially <\$1/kg)**. Found in tectonic regions, ultramafic rocks, ophiolite complexes, and hydrothermal systems. In India, promising areas include **Dharwar, Singhbhum**,

Vindhyan, Cuddapah, Andaman ophiolites, and Himalayan zones.

5. Vembanad Lake



Vembanad Lake is **India's longest and Kerala's largest lake**, about 5 km long and 2,033 sq km in area. It spans **Alappuzha, Kottayam, and Ernakulam districts**. Known locally as **Vembanad Kayal, Punnamada Lake, and Kochi Lake**. Fed by rivers like **Meenachil, Achankovil, Pamba, and Manimala**; drains into the Arabian Sea. Hosts islands like Pathiramanal and Perumbalam. Features Kumarakom Bird Sanctuary and the Nehru Trophy Boat Race. Part of the **Vembanad-Kol Ramsar Wetland (since 2002)**.

MAY 6

1. Shear-wave splitting



Shear-wave splitting occurs when **seismic shear waves split and travel at different speeds due to aligned rock fractures**. Changes in **underground magma and fluid movement affect stress, altering shear-wave behavior**. Increased shear-wave splitting may signal rising internal pressure, offering early eruption warnings. **Mount Ontake, Japan's second-highest volcano, lies in Central Honshū near Tokyo**. It had a deadly phreatic eruption in 2014, driven by steam pressure, which lacked clear seismic precursors and is hard to predict.

2. Pulsar G359- Galactic 'Bone'



Pulsar G359.13 is a 230 light-year-long non-thermal filament near the Galactic Center, visible in radio waves due to synchrotron radiation. A fracture in the filament aligns with a fast-moving pulsar (1–2 million mph), detected via X-ray (Chandra) and radio (MeerKAT, VLA). The pulsar's impact disrupted G359.13's magnetic field and structure. **Chandra detected high-energy emissions from the pulsar and nearby particles**. This event sheds light on pulsar interactions with galactic magnetic fields. **Chandra X-ray Observatory, launched in 1999, is NASA's top X-ray telescope**.

3. Pwani Molecular Form



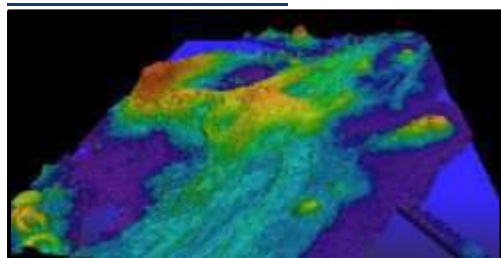
Pwani Molecular Form is part of the **Anopheles gambiae complex, known for malaria transmission**. It shows significant genetic divergence, suggesting unique ecological or behavioral traits. **Genetic data reveal it is limited to coastal East Africa, especially Tanzania and Kenya**. It lacks typical insecticide resistance markers, indicating possible susceptibility or a different resistance mechanism. This poses challenges for **malaria control strategies relying on insecticides like bed nets and indoor spraying**.

4. SVAMITVA Scheme



Launched in **2020** as a Central Sector Scheme by the **Ministry of Panchayati Raj**. Aims to **provide rural property ownership documents using drone technology**. Enables use of property as a financial asset for loans and benefits. Supports rural planning through accurate land records and GIS maps. Helps determine property tax for Gram Panchayats or state revenue. Reduces legal disputes over property. **Survey of India is the technology partner**; implemented by State Revenue Departments.

5. Axial Seamount



Axial Seamount is an **underwater shield volcano** located **~300 miles off Oregon's coast** on the **Juan de Fuca Ridge**. It lies **1400 m below sea level** and features a large caldera at its summit. It is **the most active submarine volcano in the northeast Pacific, erupting in 1998, 2011, and 2015**. Formed by a hotspot, it hosts hydrothermal vents supporting unique marine life. It is **part of the Ocean Observatories Initiative** and houses the **New Millennium Observatory (NeMO)**.

7 MAY

1. Organization of Islamic Cooperation (OIC)



The **Organization of Islamic Cooperation (OIC)** is the **second-largest intergovernmental body after the United Nations (UN)**, with **57 member states** across four continents. **Established on 25 September 1969 in Rabat**, Kingdom of Morocco, after the arson attack on Al-Aqsa Mosque. **Aims to**

preserve Islamic values, protect the national sovereignty and independence of member states, and promote international peace and security. Acts as the collective voice of the Muslim world in political, economic, and social areas.

Headquarters: Jeddah, Kingdom of Saudi Arabia; **official languages: Arabic, English, and French.**

Main bodies: Islamic Summit Conference (ISC), Council of Foreign Ministers (CFM), and the General Secretariat.

Collaborates with United Nations agencies, national governments, and civil society organizations (CSOs).

2. ECINET (Election Commission Integrated Network Enabled Technology)



ECINET is a unified digital platform developed by the Election Commission of India (ECI). It **integrates 40+ existing apps (e.g., Voter Helpline, cVIGIL, Suvidha 2.0, ESMS, Saksham, KYC App)**. Offers a simplified User Interface (UI) and User Experience (UX). Reduces the need for multiple app logins. Only authorized officials can enter data. **Ensures legal compliance with Representation of People Acts (1950 & 1951) and associated rules.** Expected to benefit **100 crore electors** and over **70 lakh election personnel**.

3. Alcatraz Island



Alcatraz Island, also called **"The Rock,"** is a **22-acre island in San Francisco Bay, California**. It hosted California's first lighthouse in **1854**. **Became a military post in 1859 and a military prison by 1861**. Designated the Pacific Branch of the U.S. Military Prison in **1907**. Used as a **federal prison from 1934 to 1963**, housing up to **330 inmates**,

though usually fewer than 260. Closed due to high costs and became a tourist site in 1972.

4. Sanjay Gandhi National Park (SGNP)



Located near **Borivali**, spanning **Mumbai Suburban and Thane districts**. Initially named **Krishnagiri National Park**; renamed to Sanjay Gandhi National Park in 1981. **Covers 103 sq.km.**, among the world's largest city-based parks. Hosts **Kanheri Caves** (1st–10th century CE), with Buddhist art and architecture. Contains **Tulsi and Vihar Lakes**, supplying water to South Mumbai. Rich flora (Teak, Kadamba, etc.) and fauna (leopard, deer, birds, butterflies, etc.).

5. Total Allowable Catch



Total Allowable Catch (TAC) is the **legal maximum of fish harvest allowed from a water body in a given time**, ensuring sustainable fisheries. It helps **prevent overfishing, supports biodiversity**, and protects coastal livelihoods. India's equivalent is a seasonal fishing ban during fish breeding season in its EEZ.

East Coast: April 15 – June 14

West Coast: June 1 – July 31

The ban aids fish stock regeneration during the monsoon.

6. What is Santhara?

Santhara—also known as **Sallekhana** or **Samadhi Maran**—is a **solemn vow in Jainism**, where one **gradually gives up food and water to embrace death with spiritual detachment**, believed to **cleanse the soul of karma**. Jain scriptures emphasize that **this vow should only be undertaken when death is near, or in cases of**

extreme old age, incurable illness, or unavoidable hardship (like famine). For example, if someone's worsening eyesight leads them to unknowingly harm living beings – violating the principle of ahimsa – they may choose Santhara. However, the **recent death of a toddler has raised serious ethical and legal concerns**. Child rights activists and medical professionals argue that a child cannot give informed consent for such a life-ending ritual, which is meant for spiritually aware adults.

7. About Mangar Bani

Mangar Bani is a **Paleolithic archaeological site** and a sacred grove hill forest located in the **Aravalli ranges along the Delhi-Haryana border**. It lies within the only primary forest of the Delhi NCR region. Despite its forest-like features, **Mangar Bani is not officially notified as a forest under the Forest (Conservation) Act**. A primary forest is an ecologically mature ecosystem, naturally regenerated and minimally disturbed by human activity, comprising native tree species

8. Procedure for Voter Registration

The Election Commission of India (ECI) mandates new voters to apply using Form 6.

Applicants must submit: Self-attested proof of age and address (such as utility bills, passport, etc.) **A declaration of Indian citizenship, which they must personally sign**. Proof of citizenship (such as passport or birth certificate) is not strictly required unless the ERO suspects the applicant's credentials. **Electoral Registration Officers (EROs) and Booth Level Officers (BLOs) are responsible for verifying the applications.**

The process includes:

- Verification of documents,
- Hearings for claims and objections,
- Acceptance or rejection of the application.

Section 31 of the RP Act, 1950 penalizes false declarations in voter applications.

9. OPEC+

OPEC+ has 22 members, made up of 10 major oil producing countries (**Russia, Kazakhstan, Azerbaijan, Brunei, Bahrain, Mexico, Oman, South Sudan, Sudan and Malaysia**), along with the

12 OPEC members. **The OPEC+ was formed in 2016** after the adoption of the 'Algiers Accord' by OPEC countries in September 2016 and signing of the 'Vienna Agreement' in November 2016 between OPEC and other major oil exporting countries. The move was largely a response to sharply falling oil prices caused by a surge in U.S. shale oil production.

10. The NAMASTE (National Action for Mechanised Sanitation Ecosystem) scheme

It was launched in July 2023 by the Ministry of Social Justice and Empowerment in collaboration with the Ministry of Housing and Urban Affairs. It is a Central Sector Scheme. It aims to **ensure the safety, dignity, and rehabilitation of sanitation workers**. It focuses on **eliminating hazardous manual cleaning of sewers and septic tanks by promoting mechanized, safe, and skilled sanitation practices**. The components include profiling of Sewer and Septic Tank Workers (SSWs); Health Insurance coverage under AB-PMJAY; Occupational safety training of SSWs; upfront Capital Subsidy for procurement of Sanitation related Vehicles/ Equipments; PPE kits to SSWs; safety devices to Emergency Response Sanitation Units (ERSUs) and IEC Campaign for awareness of safety and dignity of SSWs. In **2024, waste pickers were added under the scheme to support safe, dignified, and sustainable livelihoods**.

MAY 8

1. Lagrangian Growth-Advection (GA) Model



Combines **Lagrangian particle tracking with advection and biological growth**. Maps phytoplankton succession and carbon export via surface currents. Captures spatial and temporal

lags in carbon production and export. **Includes zooplankton activity and biological succession**. Offers an alternative to ocean color-based models. Validated using deep-sea data from Station M. **Better explains carbon flux pulses missed by previous models**. Enhances understanding of oceanic carbon sequestration and climate regulation.

2. Human Development Report 2025



Published annually by UNDP, HDR evaluates countries using the Human Development Index (HDI). The **2025 report, titled "A Matter of Choice", focuses on AI's impact on development**. Global HDI progress has stalled; rising tensions and jobless industrialisation are key concerns. **Iceland topped the HDI; India ranked 130th** with an improved score of 0.685. **India showed gains in life expectancy, education, and GNI**. It also excelled in AI skills and talent retention among developing nations.

3. Kaleshwaram Lift Irrigation Project (KLIP)



Multi-purpose irrigation project on the **Godavari River at Kaleshwaram, Telangana**. Supplies water for irrigation and drinking to 45 lakh acres in 20 districts, including Hyderabad. **World's largest multi-stage lift irrigation project; starts at Pranhita-Godavari confluence**. Pranhita River formed by Wardha, Painganga, and Wainganga rivers. Covers 500 km with 7 links, 28 packages across 13 districts. Canal network extends over

1,800 km. Targets 240 TMC water for irrigation, municipal, industrial, and drinking needs.

4. Bhimgad Wildlife Sanctuary



Bhimgad Wildlife Sanctuary, located in Karnataka's Belgaum district, was declared in December 2011. Named after Bhimgad Fort, built by Shivaji Maharaj in the 17th century. Borders Dandeli, Bhagwan Mahaveer, Mollem, Netravali, and Mhadei sanctuaries. Features diverse terrain including hills, valleys, and plateaus. Forms headwaters for rivers like Tillari, Malaprabha, and Mhadei. Hosts Barapede caves, the only breeding site of the endangered Wroughton's Free-tailed Bat. Dominated by moist broadleaf forests.

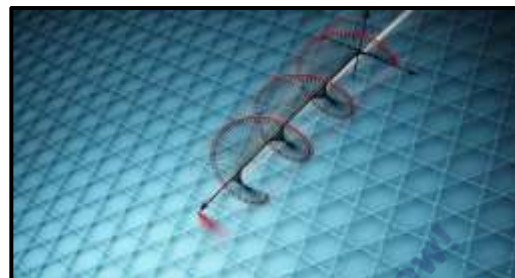
5. IXPE (Imaging X-ray Polarimetry Explorer)



IXPE (Imaging X-ray Polarimetry Explorer) is a NASA-Italian Space Agency mission launched on December 9, 2021. It is the first satellite to measure X-ray light polarization. Blazars are active galactic nuclei with jets pointed toward Earth; BL Lacertae (BL Lac) is a key example. IXPE found weak X-ray polarization (~6%) but high optical polarization (~5%) in BL Lac. This confirms electron-based X-ray generation via Compton Scattering, not proton-based models.

9 MAY

1. Chirality



Chirality refers to the property of an object or molecule that is **not superimposable on its mirror image**—a concept also known as "handedness". KV_3Sb_5 (Potassium Vanadium Antimonide) is a bulk quantum material that has a Kagome lattice structure, made up of corner-sharing triangles. Researchers used a Scanning Photocurrent Microscope (SPCM)—a tool for detecting nonlinear electromagnetic responses—to study this material. The SPCM detected Circular Photogalvanic Effect (CPGE), which is a sign of chirality in the system. At 4 Kelvin (-269.15°C), the material exhibited spontaneous symmetry breaking through a Charge Density Wave (CDW). This provided the first experimental evidence of intrinsic chiral charge order in a bulk topological quantum material.

2. Kosmos 482



Kosmos 482 was a Soviet Venus lander launched on March 31, 1972, under the Venera programme. A timer malfunction in the rocket's upper stage caused it to remain in Earth orbit instead of escaping to Venus. The main spacecraft burned up, but a 500-kg lander module continued orbiting and is expected to re-enter Earth's atmosphere around May 10, 2025. The Venera programme (1961–1984) launched 28 probes, with 10 successfully landing on Venus. Venera



landers used titanium hulls, insulation, and cooling systems to survive Venus's extreme surface conditions (temperature ~462°C, pressure ~92 times Earth's).

3. IMDEX Asia



IMDEX Asia is a leading **biennial maritime and defence exhibition held in Singapore since 1997**. It serves as a platform for **navies, coast guards, and defence industries to showcase naval systems and emerging technologies**. Includes high-level strategic and policy dialogues. The **International Maritime Security Conference (IMSC), part of IMDEX, was launched in 2009**. Co-organised by the Republic of Singapore Navy and RSIS. Focuses on maritime security, domain awareness, and cooperative global solutions.

4. SCALP



SCALP (Storm Shadow) is a **long-range, air-launched cruise missile developed jointly by France and the UK**. Designed for **deep strike missions**, it targets high-value, fixed locations. Has a range of ~500 km, carries a 450 kg warhead, and weighs 1,300 kg. **Uses terrain-following navigation, GPS/INS, and infrared terminal homing for precision**. Flies at subsonic speeds (Mach 0.8) and low altitudes to evade radar.

Integrated with Rafale jets in the Indian Air Force. **Operable in all weather, with stealth and accuracy.**

5. Anak Krakatau Volcano



Anak Krakatau is a **stratovolcano in the Sunda Strait between Java and Sumatra, Indonesia**. It emerged in 1927 from the remnants of the 1883 Krakatoa eruption. **Part of the Pacific Ring of Fire, it exhibits frequent strombolian eruptions**. The volcano sits above multiple magma chambers. Since 1963, it has had at least nine eruption episodes. **On 22 December 2018, a flank collapse triggered a tsunami, devastating parts of southern Sumatra and west Java.**

12 MAY

1. Pangenome



Scientists created the **first-ever pangenome of Asian rice (Oryza sativa L.) using 144 wild and cultivated varieties**. It includes **both core and unique genes**, mapping complete genetic diversity. Comparable to the Human Genome Project, but focused on rice. Aims to **develop advanced cultivars with disease resistance and climate resilience**. Rice feeds nearly two-thirds of the global population. India produced a record 220 million tonnes of rice in 2024–25, with a yield of 4.2 tonnes/hectare.

2. RNA exosomopathies



RNA exosomopathies are **genetic disorders affecting RNA exosome components, leading to brain maldevelopment (e.g., PCH1)**. The RNA exosome, a multi-protein complex, degrades faulty RNA and matures rRNA.

- **Study 1:** Introducing human mutations into yeast revealed defects in RNA surveillance and ribosome production.
- **Study 2:** Humanised yeast models confirmed mutations directly impair exosome function.
- Yeast models are **effective tools for rapid, cost-efficient analysis of RNA exosome mutations**.

3. Magnetars



Magnetars are **neutron stars with extremely strong magnetic fields**, much stronger than typical neutron stars. In **2004, a giant flare from a magnetar showed unusual gamma-ray emissions nearly a day later**. These emissions hinted at radioactive decay from neutron-rich isotopes, indicating **r- process nucleosynthesis**. The r-process involves rapid neutron capture to **form heavy elements like gold and uranium**. Findings suggest magnetars may have contributed to the early formation of heavy elements in the universe.

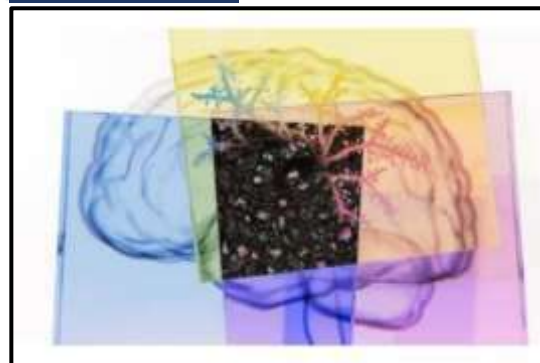
4. Credit Guarantee Scheme for Startups (CGSS)



Launched in 2022 to provide credit guarantees for loans to DPIIT-recognised startups. **Implemented by National Credit Guarantee Trustee Company Ltd. (NCGTC)**. Guarantees provided to Member Institutions (banks, NBFCs, SEBI-registered AIFs), not directly to startups. **Assistance included venture debt, working capital, debentures, mezzanine debt** etc. Offers transaction-based and umbrella-based guarantee covers.

Revised: Guarantee limit raised to Rs. 20 crore; coverage enhanced (up to 85%). Annual Guarantee Fee reduced to 1% for 27 Champion Sectors.

5. LICONN (Light-microscopy-based Connectomics)



LICONN ((Light-microscopy-based Connectomics) is a **new brain mapping method developed at Institute of Science and Technology Austria (ISTA)**. It maps neural networks at the nanoscale and identifies specific molecules simultaneously. **Combines light microscopy, hydrogel expansion, fluorescent staining, AI, and analytical tools**. Overcomes limitations of electron microscopy (EM) and conventional light microscopy by enabling both structural and molecular visualization. Brain tissue is expanded 16 times using a special gel, allowing sub-light-microscope resolution. **First non EM method to fully reconstruct synaptic connections in brain tissue**.



13 MAY

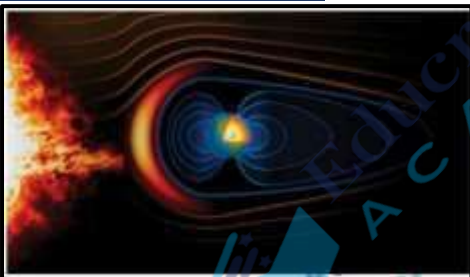
1. Central Public Health and Environmental Engineering Organisation (CPHEEO)



Central Public Health and Environmental Engineering Organisation (CPHEEO) is a **technical wing of the Ministry of Housing and Urban Affairs, originally established under the Ministry of Health in 1954**. It advises States and Urban Local Bodies (ULBs) on urban water supply, sanitation, and Municipal Solid Waste Management (MSWM)

Composed of Group 'A' engineers specialized in Public Health Engineering/Environmental Engineering, selected by the Union Public Service Commission (UPSC). Provides technical guidance, policy support and appraises schemes, including those for bilateral and multilateral funding. Formulates national strategies and guidelines, though water and sanitation are State subjects.

2. Magnetic Flip-Flop



Earth's magnetic field acts as an **invisible shield protecting against solar and cosmic radiation**. Generated in the liquid outer core by electric currents from molten iron movement. **Magnetic reversals are long-term pole swaps (e.g. Brunhes-Matuyama, 780,000 years ago)**

Geomagnetic excursions are short-term polarity flips (e.g., Laschamps, 41,000 years ago)

183 reversals in 83 million years; caused by fluid turbulence in the core

Filed strength has weakened by 10% in 200 years; poles are shifting rapidly.

3. Indian Grey Wolf



The Indian Grey Wolf is a **subspecies of the Grey Wolf, found from Israel to the Indian subcontinent**. Prefers scrublands, semi-arid grasslands, and agro-ecosystems. Nocturnal, hunts in small packs, and lacks a thick winter coat. **Listed as Least Concern (IUCN), but locally endangered in India. Protected under CITES Appendix I and Schedule I of WPA, 1972**. Faces threats from domestic dogs, canine distemper and genetic dilution. Vaccination is considered over culling due to animal rights concerns.

4. Chenab River



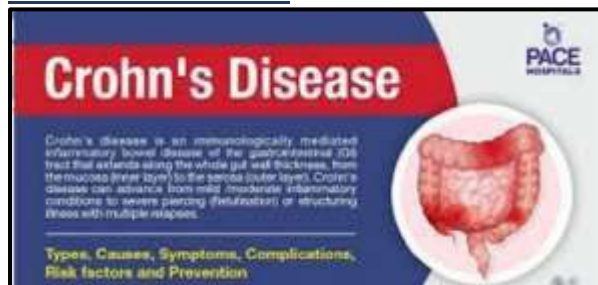
Name "Chenab" derives from 'Chan' (Moon) and 'nab' (Water). Originates from the **confluence of Chandra and Bhaga at Tandi, Himachal Pradesh**. Flows through Jammu & Kashmir and enters Pakistan's Punjab province. **Joins the Jhelum near Trimmu and merges with the Sutlej, a tributary of the Indus**.

Length: 974 km; largets river of Himachal by volume.

Major tributaries: Miyar Nalla, Sohal, Thiroth, Bhut Nalla, Marusudar, Lidari.

Waters governed by **Indus Water Treaty**.

5. Crohn's Disease



Chronic inflammatory bowel disease (IBD) causing **swelling in the digestive tract**. Most commonly affects **end of the small intestine and beginning of the large intestine**. **Inflammation may spread into deeper bowel layers**. Can be painful, debilitating and may lead to serious complications. Symptoms include **diarrhea, abdominal cramping, pain, and weight loss**. No known cure, but therapies help reduce symptoms and may achieve long-term remission. With treatment, patients can live functional lives.

6. Great Nicobar Island



Southernmost island of the Nicobar Islands, separated from the Andaman Islands by the **Ten Degree Channel**. **Covers 1044 sq. km**, with dense tropical rainforests covering over 85% of its area. Features 100 + km of untouched beaches with coral reefs and clear waters. **Home to Indira Point, India's southernmost point**.

Highest peak: Mount Thullier (2,105 ft.)

Hosts the **Great Nicobar Biosphere Reserve (UNESCO site)**

Rich in biodiversity with endemic and endangered species like the **Dugong, Saltwater Crocodile and Nicobar Megapode**.

14 MAY

1. Germanium



Context: India is engaging with the Chinese government to navigate export restrictions on germanium, a critical mineral that is **used in manufacturing of semiconductors, fiber optic cables and solar panels**.

Germanium (Ge, atomic number 32) is a silver-gray metalloid in Group 14 of the periodic table. It shares chemical and physical properties with **silicon and has a diamond like structure**. Predicted by Mendeleyev (1871) and discovered by Clemens Winkler (1886) **Stable in air and water; reacts only with nitric acid**. Became important post-1945 due to its semiconductor properties. **Extracted mainly from zinc ores (75%) and coal (25%)**

China produces 60% of global germanium supply.

2. Bhoramdeo Wildlife Sanctuary



Bhoramdeo Wildlife Sanctuary is located in **Kawardha district, Chhattisgarh** within the Maikal range of the Satpura hills. **Covers an area of 352 sq. km and named after the nearby Bhoramdeo Temple** (known as the "Khajuraho of Chhattisgarh", dedicated to Lord Shiva)

Part of the **Kanha-Achanakmar Corridor**, linking **Kanha NP (MP) and Achanakmar WS (Chhattisgarh)**

Features undulating hills, dense forests, and streams; **source of Fen and Sankari rivers.**

Vegetation includes tropical moist and dry deciduous forests with **Saaj, Sal, Tendu, Nilgiri.**

Fauna: tigers, leopards, sloth bears, deer, birds.

3. Buddhavanam and Nagarjunakonda



Buddhavanam is a **279- acre Buddhist theme park in Telangana on the Krishna River's northern bank.**

Developed under the Integrated Buddhist Circuit to attract global tourists, especially from Southeast Asia.

Features include **Buddhacharitha Vanam, Jataka Park, Dhyana Vanam, stupa Vanam with Maha Stupa, and a heritage museum**

Located near **Nagarjuna Sagar, beside ancient Nagarjunakonda**, capital of the Ikshvaku dynasty (3rd-4th century CE)

Nagarjunakonda was a Mahayana Buddhist hub with stupas, monasteries, and sculptural panels.

4. Ferroelectricity



Ferroelectricity is the **spontaneous alignment of electric dipoles in certain non-conducting crystals, reversible by an external electric field.**

Examples include **barium titanate (BaTiO₃) and Rochelle salt.**

Domains are aligned dipole regions; their reorientation causes ferroelectric hysteresis.

Curie Temperature marks the point where ferroelectricity disappears due to thermal

agitation. Domain walls separate regions of different polarisation and may exhibit unique electric/magnetic properties, enabling nanoelectronic applications.

Oak Ridge National Laboratory's (ORNL) Scanning Oscillator Piezoresponse Force Microscopy (SO-PFM) technique captures dynamic movements of domain walls under fluctuating electric fields, using atomic force microscopy (AFM) with precision timing.

5. Axions and HAYSTAC Experiment



Axions are **hypothetical particles proposed to solve the Strong Charge-Parity (CP) problem in Quantum Chromodynamics (QCD)** by adjusting the theta parameter. They are electrically neutral, extremely light, and weakly interacting-making them strong candidates for Cold Dark Matter (CDM)

The Haloscope at Yale Sensitive to Axion Cold Dark Matter (HAYSTAC) experiment aims to **detect axions via their conversion into photons in a strong magnetic field.**

HAYSTAC uses quantum squeezing to reduce measurement noise and enhance sensitivity. Only HAYSTAC and the Laser Interferometer Gravitational-wave Observatory (LIGO) employ quantum squeezing in detection.

19 MAY

1. BSF (Border Security Force)



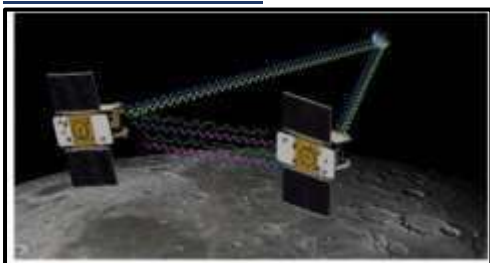
BSF is the **First Line of Defence** and a **Central Armed Police Force** under the **Ministry of Home Affairs**. Raised on **1st December 1965** after the **India-Pakistan war**.

Ensures **border security** during **peacetime** and **assists the Army** in **war** and **anti-Naxal operations**.

Deployed along **Indo-Pak, Indo-Bangladesh borders, and LoC**. Has **186 battalions**, **2.57 lakh personnel**, and exclusive **Air, Marine, and Artillery wings**. Operates a **Tear Smoke Unit** and **Camel & Dog units**

DG is from the Indian Police Service (IPS)

2. GRAIL Mission



GRAIL (Gravity Recovery and Interior Laboratory) was a **NASA lunar mission launched in 2011 with twin spacecraft Ebb and Flow**

Its goal was to create the most detailed lunar gravitational map by measuring the distance variations between the two orbiters.

Key findings include:

- **Thinner, porous lunar crust**
- Tidal deformation differences between near and far sides
- **Volcanic activity and heat imbalance** on the nearside
- **Discovery of dikes** showing past lunar expansion
- Crustal asymmetry influencing surface lava flows

3. World Food Prize



World Food Prize is an international award recognising efforts to improve the quality, quantity or availability of food globally. **Known as the "Nobel Prize for Food and Agriculture"**

It honours contributions across fields like **agriculture, nutrition, economics, poverty alleviation, science and political leadership**.

Founded in **1986** by **Dr. Norman E. Borlaug, Nobel Peace Prize (1970) laureate**.

Administered by the World Food Prize Foundation, supported by various sponsors. Carries a **\$500,000 prize**, presented during the **Borlaug Dialogue** in **Des Moines, Iowa**, around **World Food Day (October 16)**

M.S. Swaminathan was the first laureate (1987) for introducing high-yielding wheat and rice varieties in India

2025 winner: **Brazilian microbiologist Mariangela Hungria** for pioneering biological seed and soil treatments, boosting yields and reducing synthetic fertilizer use.

4. e-Passport



An e-passport is a **digital version of the traditional passport with an embedded Radio Frequency Identification (RFID) chip**.

It securely stores personal and biometric data (name, DOB, facial image, fingerprints) and a digital signature

Security features include:

- **Basic Access Control (BAC)**- prevents unauthorised scanning
- **Passive Authentication (PA)**-detects tampering
- **Extended Access Control (EAC)**- secures fingerprint data
- **Public Key Infrastructure (PKI)**- ensures data authenticity

Benefits: enhanced security, faster immigration, global acceptance, and privacy protection

5. Coral Reefs



Coral reefs are **marine ecosystems** formed by **coral polyps** bound by **calcium carbonate**. Found in warm, clear, shallow tropical waters (w.g. **Great Barrier Reef**, **Gulf of Mannar**, **Lakshadweep**).

Types include:

- **Fringing reefs** (near shores)
- **Barrier reefs** (farther offshore)
- **Atolls** (ring-shaped, around lagoons)

Formation conditions:

- Warm ($\leq 20^{\circ}\text{C}$, stable water between 30°N - 30°S)
- **Shallow depths** ($\leq 55\text{ m}$)
- Clear, low-nutrient saltwater,
- Minimal pollution and
- **Abundant plankton** for coral feeding

20 MAY

1. Polar Satellite Launch Vehicle (PSLV)



PSLV (Polar Satellite Launch Vehicle) is a **four-stage rocket** developed by **ISRO**. Designed to launch satellites into Sun-synchronous polar orbits, ideal for Earth observation.

Stages alternate between solid and liquid propulsion systems.

- **Stage 1:** Solid fuel (HTPB), with six strap-on boosters in XL variant; thrust $\sim 4.8\text{ MN}$.
- **Stage 2:** Liquid fuel (UDMH + N_2O_4); Vikas engine; thrust $\sim 8\text{ MN}$.
- **Stage 3:** Solid fuel (HTPB).
- **Stage 4:** Liquid fuel (MMH + MON), twin engines

2. Presidential Reference under Article 143



Presidential Reference (Article 143) allows the **President of India** to seek the **Supreme Court's** advisory opinion on legal or constitutional issues. **Article 143(1)** covers public importance issues; **143(2)** pertains to pre-Constitutional treaties. The opinion is **advisory** and **non-binding**, yet highly persuasive. Originates from the **Government of India Act, 1935**. Referred on advice of Union Council of Ministers, heard by a minimum 5-judge Bench (Article 145). The Supreme Court may decline to answer vague or hypothetical queries. **Canada permits such advisory opinions; the United States does not.**

3. RS-24 Yars



RS-24 Yars (SS-29) is a **Russian MIRV-capable ICBM introduced in 2010**. Replaces SS-19 Stiletto and SS-18 Satan. Three-stage, solid propellant missile with both silo and mobile deployment.

Range: 2,000–10,500 km; **Length:** 22.5 m; **Launch weight:** 49,000 kg.

Guidance: Inertial + Glonass.

Carries up to 10 MIRVs, each with a 300-kiloton thermonuclear warhead.

Features **manoeuvrability**, and uses active/passive decoys to evade BMD systems.

4. The Canary Islands



The Canary Islands are an **archipelago in the North Atlantic, part of Spain, though located 100 km off Morocco**. They are Macaronesia's largest and most populated archipelago.

Major islands include **Tenerife, Gran Canaria, Fuerteventura, and Lanzarote**.

Santa Cruz de Tenerife is the capital; total area is 7,447 sq.km.

Formed by volcanic activity, with **Teide Peak (3,718 m) as Spain's highest point**.

The islands have a subtropical climate and are a popular tourist destination due to their strategic location.

5. Indrayani River



Indrayani River is located in **Maharashtra and is a tributary of the Bhima River**, which in turn flows into the Krishna River. It originates in the **Western Ghats near Lonavala and flows through Pune district, joining the Bhima at Tulapur**. The river is 103.5 km long and rain-fed. **Alandi (samadhi of Dnyaneshwar) and Dehu (birthplace of Saint Tukaram) lie on its banks**. Flows through Pimpri-Chinchwad, supports irrigation, and hosts Valvan Dam at Kamshet for hydroelectric power.

21 MAY

1. Market Infrastructure Institutions (MIIs)



MIIs are crucial entities for the functioning of capital markets. They include **Stock Exchanges, Clearing Corporations, and Depositories**. They ensure efficient trading, clearing, settlement, and record-keeping. Any disruption in MIIs can affect the entire financial system. **Though profit-making, they act as first-line regulators with strong governance norms**. SEBI is the primary regulator, and all MIIs must be registered with SEBI to safeguard investor interests.

2. Udanti Sitanadi Tiger Reserve



Located in **Gariaband and Dhamtari districts of Chhattisgarh**. Formed by combining Sitanadi and Udanti Wildlife Sanctuaries. **Mahanadi is the main river, with tributaries like Udanti, Sitanadi, Indravan, and Pairi**. Forms a corridor to Indravati Tiger Reserve via Kanker and North Kondagaon forests. Covers 1872 sq.km; **Deo Dongri is the highest, Atānga Dongar most prominent mountain**.

Forest types: Tropical Peninsular Sal and Southern Tropical Dry Deciduous Mixed Forests. Home to endangered Wild Buffalo, Tiger, Indian Wolf, Leopard, Sloth Bear, Mouse Deer.

3. Nineveh



Nineveh was the **capital of the Assyrian Empire under King Sennacherib in the late 8th century BCE**. Located on the east bank of the Tigris River in modern Mosul, Iraq. **One of the oldest and most populous Assyrian cities, settled as early as 6000 BCE**. Became a religious center by 3000 BCE, worshipping goddess Ishtar. Developed significantly during the **Neo-Assyrian Empire (912–612 BCE)**. Known for its gardens, parks, statuary, zoo, and cultural prominence. **Destroyed in 612 BCE by Babylonians and Medes, ending Assyrian rule.**

4. Directorate General of Foreign Trade (DGFT)



Directorate General of Foreign Trade (DGFT) is an **attached office under the Ministry of Commerce and Industry, headquartered in New Delhi**, with 24 regional offices. Formerly known as **Chief Controller of Imports & Exports (CCI&E)** before 1991, it was restructured post-liberalisation to promote trade facilitation. It **formulates and implements India's Foreign Trade Policy (FTP)**. DGFT issues the **Importer Exporter Code (IEC)** – a **10-digit unique code** mandatory for all importers and exporters in India. It **regulates cross-border transit of goods** under bilateral treaties. Grants permissions for free export items listed in **Schedule 2 of the Export Policy**. Sets standard input-output norms defining allowable inputs for a given export output. Facilitates regional trade, especially with neighbouring countries.

5. National Investigation Agency (NIA)



National Investigation Agency (NIA) was established under the **National Investigation Agency Act, 2008 after the 26/11 Mumbai terror attacks**. It is **India's primary counter-terrorism agency** with powers to investigate and prosecute offences affecting India's sovereignty, security, and integrity.

Jurisdiction: Nationwide and over Indian citizens abroad, including offences on Indian ships, aircraft, and extraterritorial crimes affecting Indian interests.

Powers: Investigates Scheduled Offences (e.g., Unlawful Activities Prevention Act, Arms Act), prosecutes in Special NIA Courts, coordinates with state police, and can conduct extraterritorial operations.

Headquarters: New Delhi; zonal offices in Guwahati and Jammu.

Leadership: Headed by a **Director-General (DG)**, usually a senior Indian Police Service (IPS) officer.

6. e-Zero First Information Report (FIR) initiative



The **Indian Cybercrime Coordination Centre (I4C)** under the **Ministry of Home Affairs (MHA)** launched the e-Zero First Information Report (FIR) initiative to **automatically convert financial cybercrime complaints over ₹10 lakh into FIRs**. Complaints filed via the 1930 helpline or National Cybercrime Reporting Portal (NCRP) trigger an automatic Zero FIR at Delhi's e-Crime Police Station. **The Zero FIR is routed to the relevant territorial cybercrime police station**; victims must convert it to a regular FIR within 3 days. The

system integrates IAC's NCRP, Delhi Police's e-FIR system, and the National Crime Records Bureau's (NCRB) Crime and Criminal Tracking Network & Systems (CCTNS) for real-time case processing. The initiative aims to speed up investigations, address delays in FIR registration, and enhance victim-centric policing.

22 MAY

1. PBAT (Polybutylene Adipate Terephthalate)



PBAT (Polybutylene Adipate Terephthalate) is a **biodegradable thermoplastic polymer** used as an **eco-friendly substitute for traditional plastics**. Composed of **adipic acid, 1,4-butanediol, and terephthalic acid**; it can be processed using conventional plastic manufacturing methods. **100% compostable – breaks down into water, carbon dioxide (CO₂), and biomass under industrial composting conditions within 180 days.** Flexible, tough, moisture-resistant, and chemically inert with good barrier properties. Often blended with other biopolymers to enhance mechanical and barrier characteristics. **Compared to PLA (Polylactic Acid), PBAT is more flexible, degrades faster, and is less expensive, while PLA is rigid and used in items like cutlery and electronics packaging.**

2. Jarosite



Jarosite is a yellow-brown mineral made of **potassium, iron, and sulphate**, found in arid,

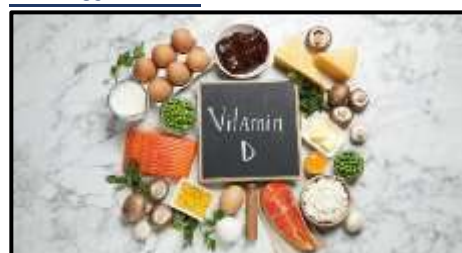
saline environments. A recent Indian study explored **jarosite from Kachchh, Gujarat, due to its Mars-like terrain**. Researchers aimed to check if jarosite could serve as a “natural clock” on Mars by tracking geological events via radiation-induced luminescence. **Using luminescence dating, they observed four stable luminescent emissions (100°C to 350°C).** Kachchh was chosen for its extreme aridity and salinity, simulating extraterrestrial conditions.

3. Shirui Lily Festival



Shirui Lily Festival is a five-day cultural and ecological event in **Ukhrul district, Manipur, home to the Tangkhul Naga tribe**. It celebrates the endemic Shirui Lily (*Lilium mackliniae*), found only in Shirui Hills. Discovered in 1946, it won a **Royal Horticultural Society (RHS) prize in 1948**. Declared **Manipur's State Flower in 1989, it's now endangered**. The festival promotes awareness and conservation.

4. Vitamin D



Vitamin D (calciferol) is a **fat-soluble vitamin**, made in the skin via ultraviolet (UV) sunlight exposure. Naturally found in few foods like fatty fish, liver, mushrooms, eggs, and fish oils. Many foods like milk and cereal are fortified with it. **Essential for calcium and phosphorus absorption, supporting bone and dental health.** Deficiency can cause **rickets, osteoporosis, hypocalcemia (low blood calcium), and secondary hyperparathyroidism**. Supplements are widely used, especially for those with limited sun exposure or darker skin.

5. Operation Olivia



Operation Olivia is an annual initiative by the **Indian Coast Guard (ICG)** from November to May to protect Olive Ridley turtles at Odisha's Gahirmatha Beach and nearby coasts. It includes 24/7 patrolling, aerial surveillance, and cooperation with local communities. **Over 5,387 surface patrols and 1,768 aerial missions have reduced threats like illegal fishing.** The ICG promotes Turtle Excluder Devices (TEDs) and partners with NGOs for conservation education. **Olive Ridley turtles are vulnerable and protected under the IUCN Red List, Wildlife Protection Act 1972 (Schedule 1), and CITES Appendix I.**

23 MAY

1. The International Booker Prize



The International Booker Prize is awarded annually for the best long-form fiction or short story collections translated into English and published in the UK and/or Ireland. **Founded in 2005 as a biennial award, it became an annual award in 2015 for non-English original works.** £50,000 prize money is split equally between author and translator; shortlisted teams get £2,500 each. **Administered by the Booker Prize Foundation.**

2025 Winner: Heart Lamp by Banu Mushtaq, translated from Kannada by Deepa Bhasthi. It is the first Kannada work and first short story collection to win. The book covers Muslim women's struggles in southern India (1990–2023).

2. International Day for Biological Diversity (IDB)



International Day for Biological Diversity (IDB) is celebrated annually on **May 22 to raise awareness about biodiversity issues.**

Theme for 2025: "Harmony with nature and sustainable development", linking biodiversity with the Sustainable Development Goals (SDGs) and the Kunming-Montreal Global Biodiversity Framework (KMGBF). Emphasizes synergy between the 2030 Agenda and Pact for the Future. **Initially observed on 29 December** (date of entry into force of the Convention on Biological Diversity (CBD)) as per 1993 UN General Assembly decision. **Date changed to 22 May in 2000 to commemorate the 1992 Nairobi Final Act and improve observance logistics.**

3. CEIR (Central Equipment Identity Register)



CEIR (Central Equipment Identity Register) is developed by the **Department of Telecommunications (DoT)** to track lost or stolen mobile phones. It maintains a central database of IMEI/ESN numbers used in India. **IMEI is a 15-digit unique number linked to mobile handsets and service providers.** Users can report a lost phone using IMEI and FIR copy. **CEIR helps track devices even if SIM cards are changed.** Supports all network operators and shares blacklisted device data.

Lists in EIR: White (authorized), Grey (under watch), Black (blocked).

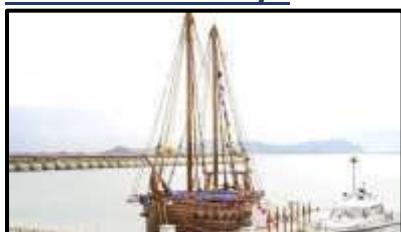
Key objectives: discourage theft, detect fraud, protect consumers, and identify illegal devices.

4. SWOT (Surface Water and Ocean Topography) satellite



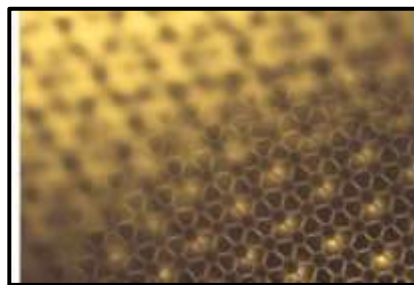
The SWOT (Surface Water and Ocean Topography) satellite is a **joint NASA-CNES mission launched in 2022**. It uses Ka-band Radar Interferometer (KaRIn) to measure surface water elevation, width, and movement. **Provides high-resolution data by bouncing microwaves off water surfaces.** Covers 55% of large-scale global floods during their lifecycle. **River waves are temporary surges from rain, snowmelt, or dam breaches, transporting nutrients but also causing floods.** Earlier, detection was limited to local stream gauges, which are sparse globally.

5. INSV Kaundinya



INSV Kaundinya was **launched in July 2023** through a tripartite agreement between the **Ministry of Culture, Indian Navy, and Hodi Innovations**. Funded by the **Ministry of Culture**, it **promotes India's maritime heritage**. Scheduled to sail from Gujarat to Oman in 2025, retracing ancient trade routes. Built using ancient stitched shipbuilding techniques, inspired by Ajanta murals. Features **Gandabherunda, Simha Yali, and a Harappan-style stone anchor for cultural symbolism**. Named after Kaundinya, a legendary Indian sailor. Ajanta paintings reflect early Indian art, Buddhist themes, and tempera technique.

6. Intercrystals



Intercrystals are formed by **stacking twisted layers of graphene on hexagonal boron nitride (h-BN)**, creating moiré patterns. They are based on the **concept of "twistronics"**, where slight angular rotations lead to moiré superlattices. **They combine properties of crystals and quasicrystals**, showing both symmetry and non-repeating patterns. Minor structural shifts lead to major electronic changes, including **superconductivity and magnetism**. This structure enables new quantum phases through geometric frustration.

26 MAY

1. Tianwen-2 Mission

Tianwen-2, by CNSA, will survey asteroid **Kamo'oalewa** and later study comet **311P/PANSTARRS**. Launched via Long March 3B from Xichang, China. **Kamo'oalewa is a quasi-satellite of Earth, discovered in 2016, with an unstable solar orbit.** Sampling methods include touch-and-go and anchor-and-attach. The Tianwen series symbolizes China's deep space exploration efforts. **Tianwen-1 was a Mars mission; Tianwen-3 will attempt Mars sample return by 2028.**

2. Debt Recovery Tribunals (DRTs)



Debt Recovery Tribunals (DRTs) are **quasi-judicial bodies under the 1993 Recovery of Debts Act**, handling loan default cases above ₹20 lakh. They adjudicate cases related to secured debts and hear

Securitisation Applications (SAs) under the **SARFAESI Act, 2002**. **39 DRTs function across India, each led by a Presiding Officer**. DRTs have powers to summon witnesses, examine documents, and conduct hearings. **Debt Recovery Appellate Tribunals (DRATs) hear appeals from DRTs; 5 DRATs are currently operational.**

3. New Development Bank (NDB)



The New Development Bank (NDB) is a multilateral development bank formed by BRICS countries (**Brazil, Russia, India, China, South Africa**). It aims to mobilize resources for infrastructure and sustainable development in BRICS and other emerging/developing countries. **Proposed in 2012 (New Delhi Summit) and formally established in 2014 (Fortaleza Summit); began operations in 2015. Headquartered in Shanghai, with regional offices in South Africa and Brazil. Open to all UN members, with equal voting rights among members.**

Authorized capital: USD 100 billion; **Subscribed capital:** USD 50 billion, equally shared. Governed by a Board of Governors and Board of Directors; leadership rotated among BRICS.

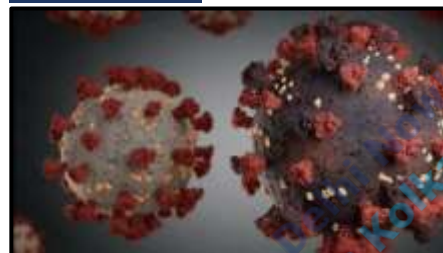
4. Nagshankar Temple



Nagshankar Temple is an **ancient Hindu shrine dedicated to Lord Shiva**. Located in **Biswanath district of Assam**, on the north bank of the Brahmaputra River. Believed to have been built by **King Narasankar of Nagakha in the 4th century AD**. Renovated by Ahom king Su-sen-pha in 1480.

The temple has a large pond with 250–300 rare turtle species, including **black softshell, Indian softshell, and Malayan softshell turtles**. Some turtles are believed to be centuries old. The campus also houses peacocks, deer, and pythons.

5. INSACOG (Indian SARS-CoV-2 Genomics Consortium)



INSACOG (Indian SARS-CoV-2 Genomics Consortium) was established in **December 2020 by the Government of India**. Jointly initiated by Ministry of Health, DBT, CSIR, and ICMR. It is a **consortium of 54 labs, coordinated by NCDC and IDSP**. Focus has shifted to early detection of emerging domestic variants.

Key objectives:

- Detect **genomic variants with public health implications**.
- Investigate unusual trends like **vaccine breakthroughs and high mortality**.
- Correlate genomic and epidemiological data to guide public health actions.

27 MAY

1. Association of Southeast Asian Nations (ASEAN)



ASEAN is a **regional inter-governmental organisation promoting political, economic, and security cooperation in Southeast Asia**. Formed in

1967 by the Bangkok Declaration; founding members: **Indonesia, Malaysia, Philippines, Singapore, and Thailand.**

Current membership: 10 countries including Brunei, Vietnam, Laos, Myanmar, and Cambodia.

Headquartered in Jakarta, Indonesia.

Key bodies: ASEAN Summit, Coordinating Council, Secretariat, and ASEAN Regional Forum (ARF).

India joined ARF in 1996. Decisions are made through consultation and consensus.

2. Indian National Space Promotion and Authorisation Centre (IN-SPaCe)

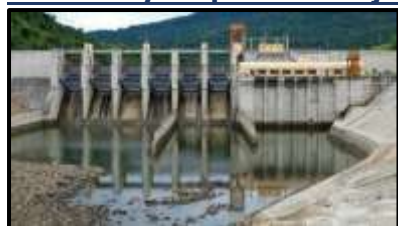


Indian National Space Promotion and Authorisation Centre (IN-SPaCe) is an autonomous agency under the **Department of Space (DoS)** to **promote and authorise private sector participation in space activities.** It facilitates access to Indian Space Research Organisation (ISRO) infrastructure and supports innovation by startups and educational institutions.

Headquartered at Bopal, Ahmedabad, it bridges ISRO and private players.

Tamil Nadu hosts ISRO's ISRO Propulsion Complex (IPRC) at Mahendragiri and the upcoming spaceport at Kulasekarapattinam. The Space Technology Incubation Centre (STIC) at National Institute of Technology (NIT) Trichy fosters regional innovation.

3. Kiru Hydropower Project



Kiru Hydropower Project is a **624 MW run-of-river scheme on the Chenab River in Kishtwar district, J&K.** Located between Kirthai II (upstream) and Kwar (downstream) hydel projects.

Estimated cost: ₹4,287 crore.

Features a 135 m high concrete gravity dam and underground powerhouse with four 156 MW vertical Francis turbines. **Developed by CVPP, a joint venture of NHPC (49%), JKSPDC (49%), and PTC (2%).** Aims to supply reliable power to the northern grid.

4. Bharat Forecasting System (BFS)



BFS is an **advanced, indigenously developed weather forecasting system by IITM, Pune.** It offers 6 km resolution forecasts, superior to the older 12-km GFS model. **Powered by the Arka supercomputer** (11.77 petaflops, 33 PB storage), enhancing speed and precision. Uses data from 40 Doppler radars, to increase to 100, for accurate nowcasts. **Covers the tropical region (30°S–30°N) including all of India.** Integrates AI/ML for better predictions. Data is openly available to global researchers.

5. Caliphaea sinuofurcata



Caliphaea sinuofurcata is a newly discovered damselfly species in **Arunachal Pradesh's Upper Siang and Lower Dibang Valley.**

Proposed name: **"Bearded Bronzeback"**, due to dense black bristles near the mouthparts.

It is **only the second Caliphaea species recorded in India, after C. confusa** (found 165+ years ago). Found in rocky, seasonal streams in broadleaf evergreen forests at 1200–1300 m elevation. It has a metallic copper-green body, brown-tinted wings, and sinuous forked paraproct aiding in species recognition.

28 MAY

1. Kumbakonam Vetrilai



Kumbakonam Vetrilai is a **betel leaf grown in Thanjavur's Cauvery river basin**, known for its unique taste and aroma. The heart-shaped leaves are **cultivated in Kumbakonam** and nearby villages like **Ayyampettai, Swamimalai, and Rajagiri**. It is central to paan preparation and exported to some countries. **First leaves (kolundhuvetrilai) emerge in 20–25 days**. First-year yield (maaruvethalai) offers larger, longer-lasting leaves. Second and third-year yields (kelavethalai, kattavethalai) are smaller and less valuable. Top of Form Bottom of Form

2. Semi-transparent Perovskite Solar Cells



Semi-transparent **Perovskite Solar Cells** are **layered over silicon cells in a 4-terminal tandem structure**. Top sub-cell uses halide perovskite, known for high light absorption and conversion efficiency (~30%) vs ~20% for silicon. **Perovskite semiconductors are locally producible and affordable**. These cells use ABX_3 structured crystals, engineered for diverse optical and electrical properties.

Advantages: High efficiency and lower cost.

Limitations: Shorter lifespan and stability concerns.

3. Panchayat Advancement Index (PAI)



PAI is a **multi-sectoral index assessing holistic development of Panchayats**. It tracks progress towards localized SDGs and **aligns with India's SDG 2030 agenda**. Based on **435 local indicators** (331 mandatory, 104 optional) across 9 LSDG themes aligned with MoSPI's National Indicator Framework. **Scores categorize Panchayats into Achiever, Front Runner, Performer, Aspirant, and Beginner**. PAI 2.0 improves usability over Version 1.0, covering 2.16 lakh GPs in 29 States/UTs.

4. East China Sea



The East China Sea is an **arm of the Western Pacific Ocean in East Asia**. It is semi-enclosed, bordered by **China, Japan, Taiwan, and South Korea**. Connects to the Japan Sea via the Tsushima Strait and to the South China Sea via the Taiwan Strait. **Part of the greater China Sea along with the South China Sea.**

Major rivers: Yangtze and Yellow River discharge into it.

Dominated by monsoon winds. Contains disputed islands like the **Diaoyu/Senkaku Islands and Ryukyu Islands**. About 35% of global petroleum shipments passed through it in 2023.

5. Jinchuanloong niedu



Jinchuanloong niedu is an **early-diverging eusauropod**, a group of long-necked, herbivorous, quadrupedal dinosaurs. Its **fossils were found in the Xinhe Formation near Jinchang city, Gansu, China**. It lived during the Middle Jurassic (~165 million years ago). **Sauropods were the largest land animals, present from the Early Jurassic to Late Cretaceous**. Eusauropods survived a late Early Jurassic global warming and became dominant in the Middle to Late Jurassic, including **Shunosaurus and Omeisaurus**.

29 MAY

1. Ghaggar River



Ghaggar is an **intermittent river flowing through India and Pakistan**, active only during the monsoon. It originates in the **Shivalik Range (Himachal Pradesh)** and **disappears into the Thar Desert (Rajasthan)**. Feeds two irrigation canals in Rajasthan. **Hakra River in Pakistan is its continuation, together called Ghaggar-Hakra River**. Linked to the Vedic Saraswati River and Indus Valley Civilization settlements. Sutlej and Yamuna once flowed into it. Main tributaries: **Kaushalya, Markanda, Sarsuti, Tangri, and Chautang**.

2. Breakthrough Prizes



Honor major achievements in **Life Sciences, Fundamental Physics, and Mathematics**. Include specific focus on **Parkinson's and Neurodegenerative disorders**. Founded in **2013 by Zuckerberg, Brin, Wojcicki, Milners, and others**. Known as the **"Oscars of Science"**, with a mission to celebrate science and inspire youth. Each prize awards \$3 million, more than the Nobel Prize. **Winners chosen by past laureates, nominations are open to the public**. Includes televised ceremonies and lectures. Repeat winners are allowed for new discoveries.

3. Invar Missile



Invar is an **anti-tank guided missile (ATGM)** launched from T-90 tank barrels. **Built by Rosoboronexport (Russia) and licensed to Bharat Dynamics Limited (India)**. Targets tanks with Explosive Reactive Armour (ERA) using a tandem warhead. **Features semi-automatic laser beam riding guidance, jamming immunity, and high precision**. Effective against stationary and moving targets (up to 70 km/h). Range: 5 km, flight time: 17.6 sec, caliber: 125 mm, missile weight: 17.2 kg.



4. Mt. Khangchendzonga



Khangchendzonga (Kanchenjunga) is the **highest peak in India and third-highest in the world (8,586 m)**. Located on the India-Nepal border, near Darjeeling, Sikkim. Part of the Great Himalaya Range. **Name means "Five Treasures of the Great Snow" due to its five summits.**

Major glaciers: Zemu, Talung, Yalung, and Kanchenjunga.

Receives heavy monsoon snowfall.

Khangchendzonga National Park lies to its east.

First ascent made in 1955 by a British team led by Charles Evans.

5. Bow Echo



A bow echo is a **radar signature resembling an archer's bow, formed by a line of thunderstorms or squall lines**. It spans 20–100 km and lasts 3–6 hours. Coined in the **1970s by Ted Fujita**, who developed the tornado classification scale. Formed when **rain-cooled air spreads, creating a gust front that lifts warm, moist air, triggering new storms**. The process continues, causing the line to bend and produce strong winds. In **2022**, a **short-lived bow echo hit Delhi-Noida with 100 kmph winds**.

30 MAY

1. Nurdles



Nurdles are **small plastic pellets (1–5 mm)** used as raw material in plastic manufacturing. They are **primary microplastics made of polyethylene, polypropylene, polystyrene, and PVC**. Used in making packaging, bottles, toys, and textiles. They **pollute marine and coastal ecosystems**, breaking down into **micro and nano plastics**. They contaminate habitats and can enter the food chain, posing risks to wildlife and humans.

2. Modified Interest Subvention Scheme



Central Sector Scheme for providing affordable short-term credit to farmers via Kisan Credit Cards (KCC). Interest subvention of 1.5% on loans up to Rs. 3 lakh at 7% interest rate. **Prompt Repayment Incentive (PRI) of 3% lowers effective interest to 4%**. For animal husbandry/fisheries, benefit is available on loans up to Rs. 2 lakh. No structural changes introduced. **Implemented and monitored by RBI and NABARD through eligible banks.**

3. Stromatolites



Stromatolites are **organo-sedimentary structures formed by algae and cyanobacteria** in shallow marine environments. They were common in the Precambrian era and some are over 2.5 billion years old. **Living stromatolites are now rare and found in a few saline lagoons.** The **Krol Group stromatolites in Chambaghat formed in the Tethys Sea during Gondwana times.** These fossils indicate ancient microbial life, tectonic shifts, and Earth's early atmosphere.

Indian sites: Chitrakoot, Morni Hills, Mussoorie, Nainital, Jaisalmer, Dharwar, and Bhima Basin.

4. Seven Summits Challenge



The Seven Summits Challenge involves **climbing the highest peak on each of the seven continents.** First completed by Richard Bass in 1985.

Peaks include: **Mount Everest** (Asia) – 8,848 m, **Aconcagua** (South America) – 6,962 m, **Denali** (North America) – 6,194 m, **Kilimanjaro** (Africa) – 5,892 m, **Elbrus** (Europe) – 5,642 m, **Mount Vinson** (Antarctica) – 4,892 m, **Kosciuszko** (Australia) – 2,228 m and **Puncak Jaya** (Oceania) – 4,884 m

Two versions: Bass list (**Kosciuszko**) and Messner list (**Puncak Jaya**).

5. "Dark Patterns"



Dark patterns are deceptive user interfaces designed to mislead users into unintended actions. The **term was coined in 2010 by Harry Brignull.** They exploit cognitive biases and range from subtle to aggressive tactics. **Common types include "sneak into basket", hidden costs, and**

misleading cookie prompts. India lacks explicit laws, but dark patterns may be covered under the Consumer Protection Act, 2019. In **November 2023, India released guidelines for 13 dark patterns, terming them unfair trade practices.**