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Mains Daily News Analysis

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Mains Daily News Analysis

Modernising India's Education System: Government's Push for 21st Century Readiness

Why in the News:

Prime Minister Narendra Modi has emphasised the government's efforts to revamp India's education system to align with 21st-century requirements.

Overview:

India is witnessing a major overhaul in its education sector, as the government aims to create a system that is globally competitive and aligned with the knowledge economy. At the inaugural YUGM Innovation Conclave in New Delhi, PM Modi reiterated the government's dedication to fostering a modern, inclusive, and future-ready education ecosystem. Central to this transformation is the New Education Policy (NEP), which aims to empower youth with skills and perspectives suited for a global innovation landscape.

Key Drivers of Reform:

The transformation is rooted in the vision that India's progress is tied to preparing its youth for global challenges. The reform is guided by three pillars: **Talent**, **Technology**, and **Temperament**. The NEP, launched in 2020, is being continuously updated to reform curricula, integrate technology, and elevate education standards across the board.

Major Reforms and Infrastructure Initiatives:

● School Education:

The National Curriculum Framework is developing new textbooks for Classes 1–7 that emphasise conceptual understanding, experiential learning, and multilingualism

to reflect India's diversity.

- **Higher Education:**

Expansion in institutions like IITs and the introduction of meditech programs in collaboration with AIIMS aim to strengthen links between academia and industry, particularly in emerging sectors like biomedical engineering and AI.

- **Digital Infrastructure:**

Initiatives like **PM e-Vidya** and **DIKSHA** are building a unified digital education system. Educational content is now available in over 30 Indian and 7 foreign languages to ensure inclusivity.

Boosting Research and Innovation:

- **Research Infrastructure:**

The number of research parks has increased from 3 to 9 since 2014, with 13 more on the way. Around 6,000 colleges and universities now have R&D Cells, promoting research culture.

- **Anusandhan National Research Foundation (ANRF):**

This upcoming body will focus on cutting-edge research. India's research expenditure has more than doubled, indicating a shift toward innovation-led education.

- **Commercialising Innovation:**

The government is supporting the transition from lab research to market products through collaborations between academia, industry, and startups, making universities hubs for innovation.

Global Integration and Mobility:

- India is expanding its educational presence globally with campuses of IIT Delhi in Abu Dhabi, IIT Madras in Tanzania, and IIM Ahmedabad planned for Dubai.

- Simultaneously, top foreign universities are being encouraged to set up campuses in India to promote cross-border academic exchange.

Universal Knowledge Access:

- The **One Nation, One Subscription** initiative allows all Indian learners and researchers access to premium research journals, removing institutional barriers and promoting lifelong learning.

AI in Education:

- Aligned with the IndiaAI Mission, the government is investing in AI tools for personalised learning, predictive skill assessment, and enhanced teaching methods across all levels of education.

India's Urban Future at a Crossroads

Context:

As summer peaks, Indian cities are facing acute challenges—water shortages, increased energy demands, and record-high temperatures. Cities like Bengaluru and Hyderabad are witnessing surging tanker water bookings and frequent blackouts, highlighting India's unpreparedness for climate extremes and rapid urbanisation.

Urban Growth Challenges & Limitations of Current Indices:

- **Challenges of Urban Expansion:**

While urbanisation has spurred economic growth and innovation, it has also intensified problems like pollution, congestion, and environmental damage, especially impacting the poor.

The **Sustainable Futures Collective's 2025 report** warns that Indian cities lack adequate climate planning, and frequent discussions in Parliament highlight concerns about worsening urban heat islands. Achieving **SDG-11** (sustainable cities by 2030) will require urgent action.

- **Inadequate Monitoring Tools:**

Despite available global indices, India lacks effective tools for evaluating SDG-11 goals at the city level.

For instance, NITI Aayog's **Urban SDG Index** assesses 56 cities but uses only 4 indicators for SDG-11.

The **Ease of Living Index** and international benchmarks like Mercer's and EIU's indices don't reflect India's urban realities adequately. This creates a significant policy blind spot.

Introducing New Urban Indices:

To fill the evaluation gap, researchers have designed four focused indices targeting SDG-11's key components: **Safety, Inclusivity, Resilience, and Sustainability**.

- Rankings were assigned to ten major cities using data from authoritative sources like Census 2011, IMD, NCRB, RBI, and others.
- A statistical model, the Shannon Entropy Weighting Technique, was used to assign unbiased weights to the indicators.

Findings:

- **Inclusivity:** Ahmedabad ranked highest; Jaipur was the lowest.
- **Safety:** Bengaluru led, while Kolkata ranked last.
- **Sustainability:** Surat topped; Kolkata fared poorly.
- **Resilience:** Chennai performed best; Jaipur again ranked lowest.

These findings challenge the rankings from existing indices like NITI Aayog's, revealing new perspectives on urban performance.

Key Takeaways and Issues:

- **Inclusivity gaps** reveal systemic social and economic inequalities.
- **Safety disparities** point to uneven policing and crime prevention.
- **Sustainability variations** show inconsistency in environmental management and waste control.
- **Resilience issues** indicate a lack of effective disaster preparedness and urban planning.

The **Janaagraha 2023 survey** further confirms these gaps—only 16 cities have dedicated sustainability plans, and just 17 have formal resilience strategies.

Way Forward:

- **City-Level Monitoring:** Local bodies must implement SDG-11 tracking, akin to state-level district mechanisms.
- **Technology Utilisation:** Smart Cities' Integrated Command and Control Centres (ICCCs) can be leveraged for real-time urban data analytics.
- **Urban Poverty Mapping:** A regular, state-level **Urban Poor Quality of Living Survey** is vital, as outdated Census 2011 data is insufficient.
- **Localised Strategies:** Solutions must be city-specific and data-driven rather than one-size-fits-all national schemes.

Conclusion:

Creating sustainable, resilient, inclusive, and secure cities requires immediate and strategic efforts supported by accurate data and responsive governance. If these challenges go

unaddressed, India risks falling short of its **SDG-11 targets by 2030**, potentially impacting the quality of life for millions in its urban centres.

Understanding the 2025 Papal Conclave: Dynamics, Divisions, and Decisions

Why in the News?

Pope Francis has recently passed away at age 88 in Vatican City's Domus Sanctae Marthae, initiating a crucial transition phase for the Catholic Church.

Introduction

- The Catholic Church enters a significant moment as the papacy stands vacant.
- This interim period, known as **sede vacante**, will culminate in the election of a new Pope through the Papal Conclave.
- The Conclave is a time-honoured and sacred process, yet it is also politically nuanced.
- It operates under strict guidelines set by the apostolic constitution **Universi Dominici Gregis** (UDG), merging secrecy, ritual, diplomacy, and strategic interaction.

Rules and Procedures

- UDG mandates complete isolation and confidentiality for electing cardinals.
- Only those under 80 can vote, and a two-thirds majority is required for an election, encouraging a wide consensus.
- Older cardinals, though ineligible to vote, take part in the preliminary discussions, shaping opinions indirectly.
- Negotiations occur behind the closed doors of the Sistine Chapel, led by influential "great electors."
- Secrecy is intended to allow conscience-led decisions, free from external interference.

Ideological Divisions

- The cardinals are broadly split into two camps:
 - **Reformists/Progressives:** Support Pope Francis's pastoral focus, social justice, climate initiatives, and inclusive stance on women and LGBTQ+

issues.

- **Conservatives/Traditionalists:** Favour doctrinal rigidity and pre-Francis traditions, opposing changes like same-sex blessings.
- However, many from the Global South mix traditional views with advocacy for social justice, making their choices harder to predict.

Geopolitical Shifts

- Pope Francis reshaped the electoral college by reducing European dominance:
 - Europeans now form 39.3% of electors, down from over 50% in 2013.
 - Representation from Asia-Pacific (17%), Latin America (15.6%), and Africa (13.3%) has grown.
- This global representation highlights broader concerns like migration, poverty, and interfaith issues, reducing Eurocentric influence.
- The rising influence of Global South cardinals raises the likelihood of a non-European Pope and necessitates coalition-building across regions.

Major Issues at Stake

- **Synodality:** Is it renewal or a challenge to the Church hierarchy?
- **LGBTQ+ Inclusion :** Debates around documents like *Fiducia Supplicans*.
- **Women in the Church :** Calls for roles like women deacons are gaining traction.
- **Celibacy and Bioethics:** Traditional stances may be revisited.
- **Sexual Abuse Scandals:** Reforms like *Vos Estis Lux Mundi* face scrutiny over enforcement.
- **Global and Internal Challenges:** Conflicts like Ukraine and Gaza, Vatican-China ties, and internal financial reform all demand attention.

Unpredictability of Outcome

- With no clear front-runner and a diverse, unfamiliar group of voters, the result is hard to forecast.

- The secrecy of the process conceals real-time negotiations.
- The adage "He who enters a Conclave as Pope leaves as a cardinal" reflects the frequent rise of compromise candidates.
- The final decision will stem from both strategic considerations and, for believers, divine will.

Food Safety and Nutrition in India – A Public Health Crisis

Context

India continues to overlook food safety and nutrition amid troubling health data, with issues such as widespread child malnutrition and rising lifestyle diseases.

Rampant food adulteration—from dairy to spices and oils—poses serious health risks and undermines regulatory systems.

Food and Politics

- Food choices in India are heavily influenced by social and political considerations rather than health.
- This has sidelined critical issues of nutrition and public well-being.

Nutrition and Policy Neglect

- The National Family Health Survey (NFHS-5, 2019–21) reports:
 - 35.5% of children under five are stunted
 - 19.3% are wasted
 - 32.1% are underweight
- Despite such alarming data, public health and nutrition remain underprioritized in policy-making.

Adulteration Issues

- **Milk and Dairy :**
 - A 2011 survey revealed that 70% of milk samples failed safety standards.

- Common contaminants include water, detergent, salt, and glucose.
- Fake paneer has been found in major cities, using unsafe ingredients like synthetic milk and acetic acid.

● **Spices:**

- MDH and Everest spices were banned in Hong Kong (2024) for containing ethylene oxide, a carcinogen.
- The EU has flagged similar contamination in Indian spices and banned hundreds of products.

● **Edible Oils:**

- Often adulterated with substances like rice bran and argemone oil.
- Such contamination is linked to diabetes and other non-communicable diseases.

Health Impacts

- India has over 77 million adults with diabetes, making it the "Diabetes Capital" of the world.
- The Indian Council of Medical Research (ICMR) connects this to unhealthy diets and processed food.
- Adulterated food can cause poisoning and even death, yet public awareness remains low.

Regulatory Gaps

- The Food Safety and Standards Authority of India (FSSAI) conducts raids and tests, but places much responsibility on the public.
- Weak infrastructure and inadequate training hamper enforcement.

Recommendations

- Strengthen FSSAI operations nationwide.
- Improve hygiene in food production and distribution chains.

- Promote food safety education and literacy.
- Revise pesticide standards to match international norms.
- Share responsibility between the state and citizens for accountability.

Conclusion

Food safety is a matter of both health and governance.

In a country facing the twin burdens of malnutrition and lifestyle diseases, ensuring safe, nutritious, and unadulterated food must become a national priority supported by strong institutions and informed citizens.

India's Silent Youth Mental Health Crisis – Urgent Need for Reform and Compassion

Context

Today's youth in India are facing growing psychological and emotional stress, exacerbated by academic pressure, digital overload, and loneliness. Despite rising concern, youth mental health remains largely ignored.

Alarming Mental Health Trends

- Over 40,000 student suicides in the past 5 years—around 20 per day.
- 1 in 10 adolescents suffers from a mental health condition (NMHS 2016).
- Less than 0.5% of India's health budget is dedicated to mental health.
- With 250+ million youth under age 20, this neglect is a critical issue.
- The COVID-19 pandemic worsened mental health, with increased dependence on social media replacing real self-esteem and raising anxiety.

Cultural Pressures

- **Digital culture:** Social media fuels comparison, FOMO, and digital fatigue.
- **Toxic masculinity** encourages emotional suppression in boys and normalises aggression, harming emotional growth for all genders.
- There's a pressing need to redefine masculinity with values of empathy, vulnerability, and resilience.

Need for Structural Change

● In education:

- ☐ Schools must offer psychological support via trained counsellors and emotional literacy programs.
- ☐ Digital literacy should include coping skills for online stress.

● Budget and access:

- ☐ Mental health investment needs to be increased.
- ☐ Services must reach rural areas and underserved communities.
- ☐ India faces a serious shortage of trained mental health professionals.

Creating a Supportive Environment

● Family and community :

- ☐ Families must break the stigma and learn to identify the signs of emotional distress.
- ☐ Mental health should be given the same importance as physical health.

● Public influencers:

- ☐ Celebrities and leaders can reduce stigma by sharing their struggles and encouraging open dialogue.

The Road Ahead

- Youth mental health should be a national development goal, not just a healthcare issue.
- Without urgent action, we risk losing a generation's potential.
- Government and society must work hand-in-hand—listen with empathy, invest responsibly, and act with compassion.

Conclusion

India's young people need more than academic achievement and digital validation. They need mental safety, emotional resilience, and a culture that values well-being.

If we consider them our future, we must protect their present through awareness, reform, and empathy.

Jyotiba Phule: A Pioneer of Social Reform in India

Why in the News?

Prime Minister Narendra Modi recently honoured Jyotiba Phule on his birth anniversary, celebrated on April 11. **Who was Jyotiba Phule?** Born on April 11, 1827, Phule was a visionary reformer, educator, and activist who challenged the rigid caste system and gender discrimination in 19th-century India. His life's goal was to create an equitable society through education and reform, despite facing significant resistance from orthodox forces. **Early Inspiration and Founding of Girls' Education** Phule's resolve to fight caste injustice began in 1848 after experiencing humiliation at a Brahmin wedding. Motivated by reformers like Cynthia Farrar and thinkers such as Thomas Paine, he and his wife, Savitribai Phule, opened India's first girls' school that same year. By age 24, he had established 18 schools and night classes for underprivileged and working children. **Satyashodhak Samaj and Anti-Caste Activism**

In 1873, Phule founded the Satyashodhak Samaj (Society of Truth-Seekers) to counter caste-dominated groups like the Brahmo and Arya Samaj. His seminal book, **Gulamgiri**, compared the plight of India's lower castes to African-American slaves and criticised Brahminical dominance. **Focus on Education and Upliftment of the Poor** Phule strongly advocated for universal primary education, especially for rural and poor children. He proposed scholarships and attendance incentives, envisioning education as the key to economic and social empowerment for lower castes. **Spiritual and Rational Outlook** While he opposed religious orthodoxy, Phule respected inclusive faiths like Christianity and Islam. His final work, **Sarvajanik Satya Dharma Pustak**, called for a universal, rational approach to spirituality, rejecting caste-based divisions. **Ideas on Agriculture and Social Policy** In **Shetkaryanche Asud** (The Farmer's Whip), Phule suggested innovative agricultural reforms: engaging soldiers in civil works, returning grazing lands to villagers, and importing meat cattle to preserve farm animals. He believed these were essential for breaking rural poverty. **Women's Rights and Radical Equality** Phule supported the rights of women, defending reformers like Pandita Ramabai and condemning practices like polygamy. He advocated for gender justice with the same passion as caste reform.

Enduring Legacy

Jyotiba Phule's work continues to inspire social movements today. His focus on inclusive education, institutional reform, and challenging entrenched inequalities laid the groundwork for modern social justice discourse in India.

Drop the Piecemeal Approach to Workers' Social Security

Context

India is beginning to recognise the unique needs of gig workers, as seen through initiatives like Ayushman Bharat health coverage, eShram registration, and a transaction-linked pension scheme. While these are steps in the right direction, they reveal deeper issues in India's fragmented social protection system. **Positive Developments** Unlike traditional models tied to formal jobs, the new proposals acknowledge the informal and platform-based nature of gig work. A universal account number for gig workers allows for multi-platform earnings tracking and shared employer contributions. This shift signals an evolving understanding of labour rights in the informal sector.

Challenges in the Current System

- **Lack of Comprehensive Reform:** India hasn't ratified key international labour standards like ILO Convention No. 102. Even the new Social Security Code is criticised for vague language and weak safeguards.
- **Ineffective Welfare Boards:** Many welfare boards are underperforming, with funds lying unused and benefits delayed, even in progressive states like Kerala.

Consequences of a Fragmented System

- **Disjointed Protection:** Workers in similar conditions receive vastly different benefits depending on their classification—beedi, construction, domestic, or gig workers—due to isolated schemes.
- **Unfair Prioritisation:** Focusing on gig workers while overlooking older informal sectors risks creating inequality within informal labour groups.
- **Short-Term Solutions:** Instead of fixing governance issues, the government often creates temporary schemes that don't address long-term systemic flaws.

Need for a Universal Model

India must move toward an inclusive, adaptable social security system that protects all workers, regardless of employment type. The Social Security Code can be a starting point if

used as a minimum standard, allowing states to craft more context-sensitive and future-ready policies.

Conclusion

While efforts to support gig workers are commendable, India needs deeper, systemic reforms to build a resilient welfare infrastructure that leaves no worker behind.

AI-Based Child Abuse: A Growing Digital Threat

Context

Artificial Intelligence is increasingly being misused to produce and distribute child sexual abuse material (CSAM). In a pioneering move, the United Kingdom has proposed legislation targeting AI-generated CSAM, prompting other countries like India to revisit their outdated legal tools.

UK's New Legal Approach

The UK government, via its International AI Safety Report 2025, flagged AI-generated CSAM as a serious threat. New legislation will:

- Criminalise the creation and possession of AI tools meant for CSAM.
- Ban manuals that instruct on using AI to generate such material.
- Shift focus from punishing individuals to targeting the tools themselves, allowing authorities to act early and reduce harm.
- Close gaps in existing laws that only addressed real-child imagery, not synthetic content.

India's Rising Vulnerability

India has seen a surge in child cybercrimes, with nearly 1.94 lakh reported cases of child pornography as of April 2024. Although laws like the IT Act (Section 67B) and the POCSO Act exist, they are outdated and do not address the dangers of AI-generated content.

What Needs to Be Done in India

- **Expand Legal Definitions:** Update laws to include AI-generated imagery within the definition of CSAM.
- **Proactive Monitoring:** Invest in AI tools for law enforcement to detect, track, and remove harmful content.
- **International Cooperation:** Collaborate with global efforts to standardise laws and technologies aimed at preventing digital child abuse.

Tamil Nadu's Renewed Demand for State Autonomy — Echoes of the Rajamannar Committee After Five Decades

Why in the News?

Raising concerns over the diminishing powers of states, Tamil Nadu Chief Minister M.K. Stalin has constituted a high-level committee headed by former Supreme Court judge Justice Kurian Joseph. The committee's purpose is to review Centre-State relations and recommend ways to reinforce states' constitutional rights. This move revisits an earlier initiative launched nearly 50 years ago when then CM C.N. Annadurai formed a similar committee under Dr. P.V. Rajamannar to enhance state autonomy without endangering national unity.

Key Insights from the Rajamannar Committee on Centre-State Relations

- **Centre's Growing Dominance:**

The committee observed that the Centre was increasingly intruding into state matters, often due to political uniformity at both levels of governance.

- **Submission and Leadership:**

Though initiated during Annadurai's tenure, the report was finalised under CM M. Karunanidhi and presented to PM Indira Gandhi.

- **Centralised Federalism:**

Despite the Constitution's federal structure, the committee claimed that, in practice, states had been reduced to mere administrative units of the Centre.

- **Enabling Constitutional Provisions:**

Articles 256, 257, and 365 were identified as key mechanisms allowing the Centre to direct and control states. The use of Article 365 (President's Rule) was labelled as a severe misuse of constitutional power.

- **Major Recommendations:**

- **Repeal Article 365** to avoid arbitrary imposition of President's Rule.
- **Strengthen the Inter-State Council** under Article 263 to resolve disputes through dialogue rather than unilateral action.

- **Critique of Extra-Constitutional Bodies:**

The Planning Commission was criticized as an unconstitutional body exerting central authority despite not being established by the Constitution.

- **Financial Control as a Tool:**

Discretionary central grants were seen as tools to enforce compliance, undermining the Finance Commission's role and reducing states to petitioners.

- **Threats to Federal Balance:**

The report warned of a triple threat — central planning, financial dominance, and political influence — steadily weakening the federal structure.

- **Continued Central Overreach:**

Frequent central interventions in state affairs signaled a tendency toward overarching supervision, undermining state autonomy.

- **Rethinking Centralisation:**

The committee questioned the belief that centralisation inherently strengthens India. Instead, it argued that a strong Centre should exercise restraint and avoid encroaching on state subjects like health and education, which don't compromise national security.

Resurgence of Federalism

- **Modern Context:**

CM Stalin's government is reviving the autonomy debate amid ongoing disputes over NEET, GST compensation, delimitation, and language policy.

- **Mandate of the New Committee:**

The Justice Kurian Joseph committee will examine the current legal framework and propose measures to restore the rightful powers of the states.

- **Uncertain Impact:**

Whether the Union government will act on the new committee's recommendations is uncertain, given that past reports like Rajamannar's and those of the Sarkaria and Punchhi Commissions were largely ignored.

- **Call for Cooperative Federalism:**

The initiative reflects Annadurai's 1967 vision — that Centre-State relations must be built on mutual respect and cooperation.

General Studies II

ESTD 2022

Tamil Nadu's Renewed Demand for State Autonomy: Rajamannar Committee Echoes After 50 Years

Why in the News?

Tamil Nadu Chief Minister M.K. Stalin has constituted a new high-level committee headed by former Supreme Court judge Justice Kurian Joseph to examine Centre-State relations and suggest ways to uphold states' constitutional powers. This move mirrors a similar initiative from almost 50 years ago, when then-CM C.N. Annadurai formed the Rajamannar Committee under Dr. P.V. Rajamannar to safeguard state autonomy without undermining national unity.

Key Insights from the Rajamannar Committee:

● **Central Dominance Increasing:**

The committee observed that the Centre had begun asserting more control over subjects meant for states, especially when the same political party governed both levels.

● **Federal Structure Undermined:**

It asserted that despite the Constitution appearing federal, in practice, states were functioning as mere administrative extensions of the Centre.

● **Provisions Encouraging Central Control:**

Cited Articles 256, 257, and 365 as giving excessive authority to the Centre to issue directives and enforce them on states. The misuse of Article 356 (President's Rule) was also flagged.

● **Major Recommendations:**

- Repeal Article 356 to prevent misuse.
- Set up a strong Inter-State Council under Article 263 to handle disputes collaboratively.

● **Critique of Non-Constitutional Bodies:**

The Planning Commission, not grounded in the Constitution, was criticised for centralising decision-making.

● **Financial Leverage as Control:**

Discretionary grants from the Centre were seen as tools to enforce compliance, weakening the relevance of the Finance Commission and making states dependent on central aid.

● **Threats to Federalism:**

The report identified a “triple threat” to federal balance: centralised planning, disproportionate grants, and political hegemony.

● **Need for Decentralisation:**

The committee challenged the belief that a stronger Centre ensures national strength. It emphasized that overburdening the Centre can weaken governance and advocated for clear boundaries—particularly suggesting the Centre refrain from encroaching on areas like health and education.

Contemporary Context:

● **Federal Tensions Resurface:**

The DMK government has revived concerns about central overreach—citing issues like NEET, GST compensation, and language policies.

● **New Committee's Role:**

Tasked with reviewing the existing legal and constitutional framework to reinforce state rights.

● **Uncertain Prospects:**

Like the Rajamannar, Sarkaria, and Punchhi Commission reports, it's unclear whether the new committee's suggestions will be implemented.

● **Underlying Message:**

The effort reflects Annadurai's 1967 appeal for Centre-State harmony through mutual respect and cooperation, not coercion.

The 'Political Trilemma' and the Western Democratic Crisis

Backdrop:

Western democracies are increasingly polarized, distrustful of institutions, and facing a surge in populist politics. These trends reflect the predictions of economist Dani Rodrik's political trilemma, proposed over 20 years ago.

Rodrik's Political Trilemma Explained:

In his 2000 paper, Rodrik posited that nations cannot simultaneously achieve all three of the following:

1. Deep economic globalisation
2. National sovereignty
3. Mass democracy

They can pursue only two at a time without triggering internal conflicts.

How the Trilemma Plays Out:

● **Globalisation + Democracy (EU Model):**

Countries like those in the EU gave up elements of sovereignty to facilitate integration. While this produced economic benefits, it also caused cultural and economic anxieties, fueling movements like Brexit and the rise of far-right nationalism.

● **Globalisation + Sovereignty (Technocracy):**

Here, popular democracy is weakened. Institutions like central banks and IMF dictate economic policies, often against the public will—as seen in Kenya's backlash to IMF-imposed austerity.

● **Sovereignty + Democracy (Limited Globalisation - Bretton Woods):**

Some nations, like India or China, prioritize domestic control and restrict foreign

influence. While growth may follow, this often comes with limited political freedoms.

Crisis in the West:

Western democracies have attempted to juggle all three—globalisation, sovereignty, and democracy—and now face the fallout. Declining industries, rising inequality, and eroding public trust have created a breeding ground for populist figures like Trump and Orbán, who champion nationalism and anti-globalism.

The Path Forward:

- Rodrik's framework remains highly relevant.
- Democracies must accept trade-offs and work toward:
 - Fairer distribution of globalisation's benefits
 - Strengthening democratic participation
 - Empowering local governance and building inclusive policies

Conclusion:

Fixing the crisis doesn't lie in dismantling institutions but reforming them thoughtfully—through stronger social protections, responsive governance, and rebalanced global-local dynamics.

70 Years Since Bandung – Reinventing South-South Solidarity

Context:

The Bandung Conference (April 1955), held in Indonesia, marked the birth of the Non-Aligned Movement (NAM) and formalised South-South cooperation. Seventy years later, its vision remains critical in an increasingly polarised and fragmented world order.

Foundational Principles of Bandung:

- **Anti-Colonial Unity:**
Shared colonial histories bound Asian and African nations together in their struggle for sovereignty.
- **Common Goals:**
 - Respect for territorial integrity and sovereignty
 - Political independence and non-interference
 - Peaceful coexistence is aligned with the UN Charter.

Highlight: South Africa's Fight Against Apartheid

- **Bandung as a Global Platform:**

The ANC leveraged the summit to garner international support against apartheid. Delegates like Moses Kotane and Maulvi Chachalia pushed for global solidarity.

Multilateralism Under Strain Today:

- **Challenges:**

- Geopolitical tensions have weakened faith in multilateralism.
- The UN Security Council remains structurally outdated.
- Calls for reform, including by PM Narendra Modi, reflect growing frustration.

Global South: From Margins to Momentum

- **Historic Exclusion:**

Newly independent nations were sidelined during the formation of global institutions post-WWII.

- **Legacy of Bandung:**

Led to the formation of NAM (1961) and G77 (1964), reinforcing the idea of a multipolar world.

- **Modern Role:**

- Emerging powers like India, China, and Brazil have shifted global power dynamics.
- Groupings like BRICS represent South-led alternatives to Western dominance.
- The Global South must seek new coalitions, engage constructively with the North, and promote a just, inclusive international order.

Conclusion:

The Bandung spirit calls for reimagined global governance. In an era of widening inequality and geopolitical instability, the Global South must take the lead in crafting a more equitable and multipolar world. The original visionaries of Bandung would expect no less.

Is India Heading Towards Judicial Despotism?

Why in the News:

A spate of recent Supreme Court rulings has triggered debates over whether the judiciary is overstepping its role, raising fears of “judicial despotism.”

Key Foundations:

- **Judicial Review:** Though not explicitly named, Article 13 embeds it. Articles 32 & 226 empower courts to uphold fundamental rights.
- **Evolution:** PILs and liberal locus standi expanded access, but also criticism for the judiciary encroaching into executive/legislative roles.

Article 142 – The “Complete Justice” Clause:

- Empowers SC to do “complete justice”; used in major cases like Babri Masjid and mob lynching guidelines.
- Critics call it arbitrary; defenders see it as vital for justice in exceptional situations.
- The Vice President’s criticism calling it a “nuclear missile” sparked legal pushback.

Public Reactions to SC Judgments:

- **Controversial Rulings:** Approval of demonetisation, Rafale deal, and NRC; refusal on same-sex marriage and Pegasus.
- **Assertive Stands:** Struck down Electoral Bond Scheme, NJAC Act; upheld federal principles in TN Governor case.

Separation of Powers & Democratic Tensions:

- Political hypocrisy: leaders support/oppose judicial activism based on power status.
- Nehru warned against judiciary becoming a “third chamber” but acknowledged its correctional role.
- Critics say unelected judges overriding elected bodies is anti-democratic; defenders say judicial review protects rights and constitutionalism.

Counterpoints to “Despotism” Charge:

- No systematic overreach; judiciary often sides with executive.

- Interventions are typically issue-specific, not power grabs.
- Examples like the Governor's case show correction of executive inaction, not judicial dominance.

Conclusion:

India's judiciary is a constitutional guardian, not a despot. While vigilance against overreach is essential, equating judicial activism with despotism oversimplifies its constitutional mandate.

Exploring India's Potential in the Arctic Region

Why in the News:

Melting Arctic ice is redrawing trade routes like the Northern Sea Route (NSR). India is proactively shaping its Arctic engagement.

Climate Change & NSR Opportunity:

- **Melting Ice:** Arctic sea ice shrinking 12.2%/decade (NASA); exposes the NSR linking Europe-Asia via Russia.
- **Strategic Edge:** NSR cuts shipping time/costs. Volumes surged from 41,000 tonnes (2010) to 38M tonnes (2024).
- **India's Response:** Budget 2025–26 includes a \$3B Maritime Development Fund to build Arctic-ready shipbuilding capacity.

India's Arctic Presence:

- Longstanding engagement since **Svalbard Treaty (1920)**.
- Established **Himadri research base**; India, among the few developing countries with a physical Arctic presence.
- 2022 Arctic Policy needs actionable implementation—focus on partnerships, tech development, and Arctic Council diplomacy.

Geopolitical Balancing Act:

- **Russia:** Key NSR partner; Chennai-Vladivostok corridor, working group established.
- **China:** Arctic ambitions (Polar Silk Road) could threaten Indian interests.
- **West:** Closer alignment risks alienating Russia, jeopardising Arctic access.

- **Third Path:** Cooperation with Japan, South Korea to counterbalance China and ensure inclusive Arctic governance.

Conclusion:

India's Arctic strategy must combine **commercial ambition, climate responsibility, and strategic balance**. Appointing a "polar ambassador" and enhancing multilateral Arctic dialogues can reinforce India's role in this emerging geopolitical theatre.

India–Saudi Arabia Relations: Strategic Convergence & Parallel Transformations

Why in the News:

PM Modi's upcoming visit reflects deepening India-Saudi ties amid Saudi Arabia's reform under Crown Prince Mohammed bin Salman (MbS).

Historical Evolution:

- **Early Neglect:** Sparse engagement post-Independence (Nehru in 1955, Indira in 1982, Manmohan in 2010).
- **21st Century Shift:** Jaswant Singh (2000), King Abdullah (2006), and Singh (2010) began serious strategic engagement, especially post-9/11 and counterterrorism cooperation.

Modi's Strategic Recalibration:

- Three visits (2016, 2019, 2024); elevated Saudi Arabia in "Act West" policy.
- **Key Pillars:**
 - **Energy:** India relies on Saudi oil.
 - **Economy:** Collaboration in infrastructure, tech, and digital economy.
 - **Security:** Counterterrorism, intelligence, and maritime cooperation.

MbS Era – Transformation Underway:

- Centralised leadership, replacing consensus-based monarchy.
- **Vision 2030:** Diversify beyond oil—focus on tourism, innovation, and renewable energy.
- **Reforms:**

- Women driving, public entertainment, and more rights.
- Religious moderation and counter-extremism.

Foreign Policy – From US Dependence to Multi-Alignment:

- Initially assertive (Yemen war, Qatar blockade), now more diplomatic (Iran, Qatar rapprochement).
- **New Alignments:** BRICS+ membership, stronger ties with China/Russia.
- **Mediation Role:** Ukraine crisis, US-Russia dialogue.
- Conditional support for the Israel-Palestine two-state solution.

India-Saudi Strategic Convergence:

- Both leaders (Modi and MbS) represent assertive, modernising leadership.
- **Shared Priorities:** Economic transformation, pragmatic diplomacy, regional influence.

Conclusion:

India-Saudi ties now reflect **mutual strategic convergence**, economic synergy, and shared global ambitions. Modi's visit underlines a growing partnership grounded in **interest-based, future-facing cooperation**.

Restoring Constitutional Sanity: Supreme Court's Landmark Verdict (April 8, 2025)

Context

- On April 8, 2025, the **Supreme Court of India delivered a landmark verdict in *State of Tamil Nadu vs Governor of Tamil Nadu***, fundamentally altering the legal interpretation of the Governor's role in state legislation.
- The ruling is being seen as **historic** for its implications on federalism, legislative authority, and constitutional clarity.

Background: A Prolonged Constitutional Deadlock

- Governor R.N. Ravi **withheld action on ten Bills** passed by the Tamil Nadu Assembly for several years.
- Even after the Assembly **re-passed the Bills**, the Governor forwarded them to the **President** instead of granting assent.
- This move came **only after** the state sought the Supreme Court's intervention.
- The Court deemed this action **unconstitutional**, striking down the conduct of both the **Governor and President**, invoking **Article 142** to declare all ten Bills as deemed to have received assent.
- The Court noted this was an **exceptional remedy for an exceptional crisis**.

Key Takeaways from the Judgment

1. Clarification of Article 200: Debunking the Veto Myth

- Article 200 allows a Governor to assent, withhold, or reserve a Bill for the President.
- Historically misused as a **veto**, the Court clarified that **withholding assent does not terminate a Bill**.
- If a Bill is re-passed by the Assembly, the **Governor must grant assent**, even if his earlier recommendations were ignored.
- Reinforces that **Governors, being unelected**, cannot override elected legislatures indefinitely.

2. Imposing a Time Limit: Introducing Reasonableness

- Though Article 200 doesn't specify time, the Court ruled that action **must be taken within 1 to 3 months**.
- Long delays, as in this case, **threaten federal stability**.
- The Court justified this time frame under **constitutional expediency and the principle of reasonableness**.
- While some criticized this as overreach, the Court defended it as **filling constitutional gaps** to prevent executive inaction.

3. Governor's Discretion and Role of State Government

- The Governor must act **on the advice of the Council of Ministers**, including when referring a Bill to the President.
- Raises a constitutional paradox—how can a government suggest amending its own Bill?
- The case exposed **design flaws in the Constitution**, particularly the **ambiguous role of Governors**.

4. Judicial Scrutiny of Constitutional Authorities

- The judgment reaffirmed that **actions of Governors and the President are subject to judicial review**.
- Articles 200 and 201, previously treated as **executive preserves**, are now **judicially enforceable**.
- The Court clarified it **did not rewrite the Constitution**, but ensured **constitutional offices remain accountable**.

Conclusion

- The Supreme Court's decision **restored legislative authority** and strengthened India's **federal framework**.
- It offers a **model for resolving gubernatorial standoffs** in other states like Kerala, Telangana, and Punjab.
- A **landmark in constitutional jurisprudence**, the judgment affirms the **primacy of democratic governance over executive inertia**.

India's Prison Crisis: Key Insights from India Justice Report 2025

Why It Matters

- The **Tata Trusts-led India Justice Report 2025** revealed a crisis in India's prison system marked by **overcrowding, staff shortages, and inadequate mental**

healthcare.

Report Overview

- Evaluates 5 sectors: **Police, Judiciary, Prisons, Legal Aid, and Human Rights Commissions** across all States and UTs.
- Uses **data-driven indicators** to assess progress and gaps.

Key Findings

1. Rising Overcrowding

- Prison population rose from **3.8 lakh (2012)** to **5.7 lakh (2022)**; projected **6.8 lakh by 2030**.
- Prison capacity lags— **4.3 lakh available now**, only **5.15 lakh projected by 2030**.
- **National occupancy rate: 131%**, with Maharashtra reaching **161%**.
- Overcrowding causes **health risks, poor conditions**, and strain on staff.

2. Shortage of Medical Staff

- **43% vacancy** among prison doctors; doctor-to-inmate ratio is **1:775** vs. ideal **1:300**.
- Impacts not just basic care but **outbreak response, chronic illness, and injury treatment**.

3. Mental Health System in Collapse

- Only **25 psychologists** for nearly **5.7 lakh prisoners**—1 per 22,929 inmates.
- Less than half of **69 sanctioned mental health posts** are filled.
- **Mental illness cases doubled** from 4,470 (2012) to 9,084 (2022).
- **25 States/UTs have no psychologist or psychiatrist**.

4. Disability Remains Invisible

- No national data on inmates with **pre-existing or acquired disabilities**.
- Lack of information hampers **inclusive policy and legal protection**.

Recommendations and Solutions

- **Urgent recruitment** of doctors and psychologists.
- **Invest in infrastructure** to match rising inmate numbers.
- **Publish regular prison health data**, including disability metrics.
- **Decongest jails** through bail reform, alternatives to incarceration, and sentencing reform.

Broader Message

India's prison system must evolve to meet **constitutional and human rights standards**, ensuring the **health, dignity, and safety** of all inmates.

Crisis of Confidence – Upholding Judicial Integrity in a Democratic Society

Context:

Recent allegations involving Justice Yashwant Varma have brought the judiciary under public scrutiny. However, justice must be ensured through proper legal procedures, not media-driven narratives.

Declining Public Trust in the Judiciary:

- A C-Voter–India Today survey reveals only 30% have complete faith in the judiciary, while 48% express no trust at all, indicating a serious institutional credibility issue.
- Justice Abhay S. Oka also highlighted the weakening trust, especially in rural India.

Judicial Accountability Mechanisms:

- **Internal Inquiries:** Complaints against High Court judges are dealt with internally, initiated by the Chief Justice of India, through a committee of senior judges, ensuring confidentiality and due process.

- **Judicial Independence:** To protect autonomy, early investigations are not handed over to police, especially since the government is a major litigant.
- **Presumption of Innocence:** Allegations must not translate into public condemnation without proof — a fundamental principle of justice.

Legal Safeguards:

- **For Judges and Public Servants:**

- **Section 17A** of the Prevention of Corruption Act (PCA) mandates prior approval before investigation.
- **Section 19** of the PCA requires official sanction before court proceedings.

- **Oversight Tools:**

- **Lokayukta Act:** Requires a preliminary probe overseen by a former Supreme Court judge.
- **Judges (Inquiry) Act, 1968:** Details the impeachment process through a committee of senior legal figures.
- **SC Judgment in Lalita Kumari:** Calls for preliminary inquiry before FIR in sensitive cases.

Media Trials vs. Judicial Ethics:

- Judges refrain from public rebuttals due to ethical constraints, making them vulnerable to media trials, which can mislead public opinion.
- Judicial conduct guidelines require impartiality and discretion to maintain public confidence and institutional integrity.

Separating Impropriety from Corruption:

- Possessing cash isn't inherently criminal in a cash-driven economy. Courts require clear evidence to prove corruption.
- Legal norms demand proof beyond a reasonable doubt; mere suspicion doesn't equate to guilt.

Conclusion:

- Allegations against judges must be assessed through constitutional channels, not public or media speculation.
- Upholding due process and the presumption of innocence is vital.
- Judicial independence must be protected through established laws to maintain democratic integrity.

The Issue with Population-Based Delimitation

Context:

Delimitation, the redrawing of electoral constituencies based on census data, is mandated under Articles 82 and 170. While aimed at equitable representation, it has sparked concerns ranging from demographic imbalance to threats to federalism.

Historical Overview and Electoral Trends:

- Lok Sabha seats grew from 489 (1951) to 543 (2004), with significant regional redistribution.
- No fixed ratio exists for the ideal population per MP, rising from 7.3 lakh (1951) to 27 lakh (2024).
- State assemblies also saw a rise in seat count, but population per representative has tripled.
- Although population has been a major criterion, other factors like geography and administrative boundaries have also shaped delimitation.

Challenges:

- **Legal vs. Political Dissonance:** Although mandated after each census, delimitation has been postponed since 1976 (42nd Amendment), now deferred until after the 2026 census.
- **Regional Imbalances:** Southern states fear penalisation for successful population control, while states with higher growth (mainly in the north) might gain disproportionate representation.
- These fears, though partly anecdotal, reflect genuine federal concerns.

Way Forward:

- **Redefining Representation:** In a first-past-the-post system, smaller constituencies don't guarantee better governance. Emphasis should be on empowering local

governance structures.

- **Structural Reform Over Numbers:** Increasing MP/MLA count won't solve deeper governance issues — core responsibilities like law-making and oversight remain unchanged.
- **Balanced Formula:** Instead of raw population figures, a calibrated approach using indicators like Total Fertility Rate (TFR) has been proposed.
 - For instance, adjusting seat allocation with TFR data could limit Lok Sabha expansion to around 680 seats, maintaining a balance between democratic and federal principles.

Conclusion:

Delimitation is a politically sensitive process with implications for representation, unity, and governance. A balanced, inclusive approach is necessary to avoid deepening regional divides and to uphold federal equity in India's democracy.

Reimagining Data Governance in India – A Citizen-Focused Health Data Approach

Context:

With a population of 1.4 billion, India generates vast health data with high economic value. Effective data governance is essential to ensure citizens benefit from the digital economy.

Policy Gap:

- A major issue is the confusion between **data as identity** (privacy-related) and **data as property** (economic resource), which hampers innovation and value creation.

Healthcare Data – Missed Potential:

- **Fragmentation of Systems:**
 - Large private hospitals are digitised; government hospitals are partly digitised; small clinics lack digital infrastructure.
- **Consequences:**
 - Lack of unified health records.
 - Insurers struggle with pricing.

- Researchers lack access to comprehensive data for medical and AI innovations.

Ayushman Bharat Digital Mission (ABDM):

- **Structure:** Managed by the National Health Authority, it promotes interoperability and citizen ownership of data.
- **Features:** Digital registries, data exchange frameworks, and consent mechanisms.
- **Challenges:** Patients and doctors often don't realise the future value of health data, reducing participation.

Towards a Data Marketplace:

- **Empowering Citizens:**
 - Citizens could be allowed to share or monetize anonymised data, incentivising better data practices among healthcare providers and creating new data intermediaries.

International Models – Why India Needs Its Own:

- **US (HIPAA):** Health data is monetised by corporations; patients lack data rights.
- **UK (NHS):** Centralised public ownership of data.
- **India's Reality:** A decentralised, private-heavy system demands a unique, citizen-first model.

A New Vision for Data Governance:

- **Reforms Needed:**
 - Legally recognize data as economic property.
 - Build privacy tools (like anonymisation and digital forensics) as public goods.
- **Policy Shift:** Move beyond Western templates to a locally adapted, innovation-friendly framework.

Conclusion:

India must develop a citizen-centric data governance strategy, particularly for health data.

Recognising data as economic property and empowering citizens will unlock innovation and enhance public health outcomes in the digital age.

Police Torture and Lack of Accountability in India

Background

A detailed report titled **"Status of Policing in India Report (SPIR) 2024"**, jointly published by the NGO Common Cause and the Lokniti Programme of the Centre for the Study of Developing Societies (CSDS), exposes serious concerns regarding police brutality, torture, and systemic unaccountability in India. The findings are based on interviews with 8,276 police personnel across 17 Indian states and union territories.

Torture: Global and Indian Legal Perspectives

- **Definition (UNCAT, 1984):** Torture refers to the deliberate infliction of severe mental or physical suffering by state actors for purposes like punishment or coercion.
- **India's status:** Although India signed the UN Convention Against Torture in 1997, it has yet to ratify it, rendering the commitment non-binding in legal terms.

Key Insights from the Report

- **Endorsement of harsh tactics:**
 - 55% of police support the use of aggressive methods to instill fear.
 - There is confusion over distinguishing "tough policing" from outright torture.
- **Mob justice and extra-judicial killings:**
 - 25% of personnel justify mob violence in certain crimes like sexual harassment.
 - 22% believe encounters killings are acceptable.
 - Nonetheless, 74% still advocate for due legal processes.
- **Arrest procedure compliance:**
 - Only 41% say legal protocols are consistently followed; 24% admit they are rarely or never adhered to.
 - Kerala leads in procedural compliance (94%).
- **Third-degree torture:**



- 30% justify such methods in serious cases, and 9% even in minor offenses.
- Most victims belong to marginalised communities such as Dalits, Adivasis, Muslims, slum dwellers, and the illiterate.

● **Custodial deaths:**

- Conflicting statistics from NCRB (76), NHRC (70), and NCAT (111) in 2020.
- No convictions recorded between 2018 and 2022.

● **Judicial and medical negligence:**

- Judges and magistrates are often passive during custodial proceedings.
- Medical exams are frequently conducted by doctors with no forensic training.
- The NHRC is criticized for not explicitly defining torture and for biased responses toward victims.

Positive Developments

- 79% of police personnel favor human rights training.
- 71% support torture prevention.
- 79% endorse evidence-based interrogation methods.

Structural Factors Behind Police Torture

- Colonial-era policing frameworks
- Weak accountability mechanisms
- Political and bureaucratic pressure for rapid outcomes
- Inadequate training and awareness of legal boundaries
- Public tolerance for extra-legal actions due to judicial delays

International Comparison

- The U.S. has faced global criticism for its interrogation practices at Guantanamo Bay.

- Iraq's Abu Ghraib prison scandal exposed similar abuses.
- Custodial torture remains prevalent in Russia, China, and Pakistan.

Recommendations

- Enact a robust anti-torture law.
- Consider the Malimath Committee and Law Commission recommendations to regulate confessional evidence.
- Ratify the UNCAT
- Uphold the Supreme Court mandates to shield police from external influence.
- Strengthen accountability, training, and human rights awareness in policing.

Conclusion

The SPIR 2024 reveals deep-seated systemic flaws in India's policing practices, where torture and impunity persist. A rights-based, professional, and accountable police force is essential—not just for justice delivery but for restoring public faith in the legal system. Addressing police torture is both a constitutional responsibility and a moral necessity.

Transgender Inclusion: A Long Road Ahead

Background

Observed annually on March 31, the International Transgender Day of Visibility draws attention to the struggles transgender individuals continue to face in India, despite legal protections like the Transgender Persons (Protection of Rights) Act, 2019. While the law provides a framework for rights and recognition, its poor implementation paints a different picture on the ground.

Legal Framework vs. Ground Realities

- The 2019 Act marked progress in recognizing transgender rights.
- However, bureaucratic delays in issuing identity documents hinder access to welfare schemes.
- By December 2023, only 15,800 out of 24,115 applications for ID certificates were processed.
- Delhi issued just 23 ID cards by 2022, despite having over 4,000 transgender residents.

Key Challenges

1. Economic Marginalization

- Trans individuals face significant exclusion from formal employment.
- According to a 2018 NHRC study, 92% were outside the formal workforce.
- Unemployment among transgender persons stood at 48% in 2022—far above the national average.

2. Workplace Discrimination

- Discrimination occurs during recruitment and within workplaces.
- Many employers lack gender-neutral facilities and inclusion policies.
- While some companies like Tata Steel have initiated inclusive practices, such efforts are rare.

3. Financial Exclusion

- Access to joint bank accounts and credit remains limited, despite policy reforms.

4. Educational Barriers

- Transgender students frequently drop out due to harassment and lack of institutional support.
- The transgender literacy rate was only 56.1% (2011 Census), much lower than the national average.
- In Kerala, 58% of transgender students left school due to discrimination.

5. Healthcare Access

- Transgender individuals are often denied treatment or face high costs for gender-affirming procedures.
- A National Legal Services Authority (NALSA) survey found 27% were refused care.
- Ayushman Bharat TG Plus provides up to ₹5 lakh coverage, but implementation is inconsistent.

- Gender-affirming surgeries, costing ₹2–5 lakh, are rarely fully covered.
- Mental health support and trained medical professionals remain scarce.

6. Societal Stigma

- Representation in media is often stereotypical or demeaning.
- Though awareness campaigns and cultural events like Tamil Nadu's Koovagam Festival offer visibility, deeper societal change is needed.

Steps Toward Inclusion

- **Education Reform:** Introduce inclusive curricula, financial aid, and anti-discrimination policies.
- **Healthcare Reform:** Train medical professionals, expand insurance coverage, and create dedicated transgender clinics.
- **Economic Measures:** Develop targeted job training, support transgender entrepreneurship, and ensure workplace inclusion.
- **Cultural and Media Representation:** Encourage authentic portrayals and anti-stigma campaigns.
- **Policy Monitoring:** Governments must ensure proper fund allocation and transparent implementation of welfare schemes.

Conclusion

Symbolic recognition alone is not enough. India must back its legal commitments with active enforcement, inclusive policies, and widespread social reform. Achieving true inclusion for transgender people demands joint efforts from the government, private sector, educational institutions, civil society, and media. Only then can transgender individuals move from the margins to full societal integration and empowerment.

General Studies III

Kashmir, Terrorism, and India's Long-Term Security Strategy

Context:

Recent terror attacks targeting tourists in Pahalgam (Jammu & Kashmir) reaffirm the continuing threat from Pakistan's deep state. These actions are aimed at disrupting the region's democratic progress and developmental efforts.

Key Lessons for India:

● **Historical Reflections:**

- The U.S. failed to grasp long-term consequences in Vietnam, culminating in its hasty 1975 Saigon evacuation.
- The same year, Sheikh Abdullah's return to democratic politics in J&K marked the end of two decades of soft separatism.

● **Contemporary Missteps:**

- Trump's unrealistic proposal to repopulate Gaza ignores historical complexities.
- Pakistani Army Chief Asif Munir's revival of outdated narratives—Jinnah's two-nation theory and Bhutto's "jugular vein" claim—neglects India's institutional stability, autonomy, and rising global stature.

Three Core Elements of India's Kashmir Strategy:

1. Specialisation – Precision Security Measures:

- Intelligence-backed operations led to the formation of Rashtriya Rifles (1990) and Special Operations Groups (1993).
- Institutional changes—like replacing BSF with CRPF (1995) and empowering NIA for terror financing—reflect adaptability.

2. Moderation – Controlled Use of Force:

- Contrary to the US's "search and destroy" tactics in Vietnam, India maintains order with minimal confrontation.
- Examples include the 1993 Hazratbal surrender and high voter turnout in 2024—symbols of public trust.

3. Democracy – Civic Engagement Amidst Conflict:

- Regular elections, civil administration efforts, and tolerance of ideological diversity reinforce India's democratic ethos, unlike Pakistan's political instability.

Pakistani Desperation vs Indian Progress:

India's actions—abrogating Article 370, cross-border counterattacks, and infrastructure expansion—signal integration and strength. The recent attacks are a backlash, not a sign of failure.

The Message from Kashmir:

- **Public Sentiment:** Locals in Pahalgam openly blame Pakistan for the violence.
- **Security Forces:** The sacrifices of over 2,000 personnel highlight that India's sovereignty in Kashmir is upheld through courage and commitment—echoing the motto ***Veer Bhogya Vasundhara*** (“The brave shall inherit the earth”).

Conclusion – Resolve Over Reaction:

India's measured response should be viewed as a defense of peace. Its strategic depth, democratic endurance, and institutional maturity offer global lessons in counterterrorism and conflict resolution.

Protecting Our Oceans – Building a Sustainable Blue Economy

Context:

Oceans face rising threats—pollution, overfishing, and weak governance—prompting urgent global cooperation. India is aligning its maritime ambitions with global frameworks like the upcoming UNOC3 and the BBNJ treaty.

Why Oceans Matter:

- Oceans are vital for food, trade, climate resilience, and livelihoods.
- India, with a 7,517 km coastline, considers the blue economy a core element of its Vision 2030.

Major Oceanic Challenges:

- **Environmental Strains:**
 - 8 million+ tonnes of plastic pollute oceans yearly.
 - Overfishing affects one-third of global fish stocks.
 - Climate change drives acidification, sea-level rise, and biodiversity loss.
- **Governance & Finance Gaps:**

- Lack of legally binding regulations for the high seas.
- Inadequate global funding for ocean preservation.

UNOC3 – A Paris-Like Turning Point for Oceans:

- **When & Where:** June 9–13, 2025, Nice (France), co-hosted by France and Costa Rica.
- **Focus:** Governance, financing, and scientific collaboration for sustainable marine stewardship.
- **Goal:** A global ocean agreement aligned with SDG 14 (Life Below Water).

BBNJ Treaty – Protecting Marine Biodiversity:

- Regulates areas beyond national jurisdiction (>60% of oceans).
- Aims to combat illegal fishing, pollution, and species extinction.
- Needs 60 country ratifications to be implemented.

Key Priorities for Action:

- **Funding:** Mobilize PPPs for sustainable marine development.
- **Knowledge Generation:** Address gaps in ocean science through research, innovation, and education.

India's Role:

- **"Not in My Ocean" Festival:** France-led campaign across Indian cities with exhibitions and expert events.
- **Blue Talks:** Collaborative forums to shape India's inputs for UNOC3.

Conclusion – A Shared Marine Future:

Oceans underpin ecological balance and economic growth. As global cooperation weakens, UNOC3 provides a critical opportunity to secure our blue planet through multilateral action.

India's Creative Economy – A New Global Frontier

Context:

Despite global instability, India is emerging as a creative and economic powerhouse, driven by a youthful population, tech advancements, and a rich cultural legacy. The Media & Entertainment (M&E) sector is central to this vision under the theme **"Create in India, Create for the World."**

India's Creative Ascent:

- From Bollywood to gaming, India's cultural exports are expanding rapidly.
- Namit Malhotra's DNEG, an Oscar-winning visual effects company (notably for *Dune 2*), exemplifies global success.

WAVES 2025 – A Launchpad for Creative Innovation:

- **Event:** World Audio-Visual Entertainment Summit in Mumbai, May 2025.
- **Key Feature – WAVEX:** A platform for creative startups to access mentorship, funding, and global exposure.
- **Growth Potential:** M&E sector to grow from ₹2,422 billion (2023) to ₹3,067 billion by 2027.
- **Focus Areas:** AI, gaming, the metaverse, and immersive media.

Empowering Diverse Creators:

- WAVEX supports women-led startups like Lapwing Studios and Vygr Media.
- Showcases cutting-edge ventures like Offline Human Studios (VR storytelling) and InscapeXR (immersive ed-tech).

Culture Meets Technology:

- India's creative future merges art with science. Institutions like the Science Gallery Bengaluru and MAP Bengaluru exemplify this synergy.
- Storytelling evolves—from classical dance to virtual worlds—blending heritage with modern media.

Significance of WAVEX:

- WAVES is not just a summit—it's a movement that empowers youth, drives global influence, and elevates India's soft power.
- It fosters identity, expression, and cultural exchange in a digitally interconnected world.

Conclusion – India's Moment to Lead:

WAVES and India's creative ecosystem signal a transformative era. "Create in India, Create for the World" reflects a deep-seated ambition—one where India inspires through innovation, expression, and imagination. The country is poised to become a global creative leader.

Combatting Heatwaves with People-Focused Strategies

Context

India is increasingly confronting the challenge of heatwaves arriving earlier and with greater intensity—an alarming trend observed over the last twenty years. In 2025, several states and cities faced their first major heatwave as early as March, occurring 15 to 20 days sooner than the previous year, underscoring the urgent nature of this climate threat. With 2024 marking the hottest year globally since the pre-industrial era, India now stands at a critical crossroads, grappling not only with the direct health hazards posed by extreme heat but also the profound social and economic consequences that follow.

Health Consequences of Rising Temperatures

As ambient temperatures near the human body's normal level of about 37°C, the body's natural cooling systems become overwhelmed, triggering heat stress. This condition is more than just physical discomfort—it can severely impair vital organs such as the kidneys, liver, and brain, potentially causing life-threatening illness or death. Factors like humidity and wind speed can intensify these effects. Although the health impacts are severe, they represent just one dimension of the larger heatwave crisis confronting India.

Socio-Economic Impacts and Inequality

Heatwaves strike deeply into India's socio-economic fabric. Agriculture—highly exposed to rising temperatures—experiences diminished yields, crop failures, and livestock losses, disproportionately affecting farmers and rural communities dependent on physical labor. With roughly 75% of India's workforce, about 380 million people, engaged in heat-exposed occupations, heat stress translates into major employment and income disruptions. It's estimated that India loses 3-5% of its GDP annually due to heat-related productivity declines, with 2023 witnessing about 6% of total work hours lost to heat stress. Vulnerable populations—including women, migrants, the elderly, and subsistence workers—bear the greatest burdens. Social and cultural factors amplify these hardships, for example, women often labor in poorly ventilated kitchens and wear clothing that traps heat due to societal norms. Urban slums with dense, poorly planned housing exacerbate heat exposure, making indoor environments hotter than outdoors. Thus, heatwaves are as much a social justice issue as an environmental one.

Policy Response and the Development of Heat Action Plans (HAPs)

Recognition of heatwaves as a major public health threat came relatively late. Although urban heat effects were noted by scientists as early as the 19th century, systematic policy responses like Heat and Health Action Plans (HHAPs) emerged in Europe only in the early 2000s. India's journey began in 2013, when Ahmedabad became Asia's first city to roll out a comprehensive heat action plan. Since then, over 140 cities and more than 23 states have adopted HAPs, which typically feature five core elements: early warning systems, public education campaigns, healthcare preparedness, long-term urban heat mitigation strategies such as green infrastructure and reflective roofs, and rigorous health data monitoring. However, implementation has been uneven, with success largely dependent on strong collaboration between local governments, health experts, NGOs, and community groups.

Towards More Effective and Inclusive Heat Action Planning

- **Localised, Data-Informed Approaches:** Heat plans need to be grounded in local assessments that factor in both temperature and humidity. Detailed data on heat-related illness and death are critical to fine-tuning interventions.
- **Advanced Warning Systems:** Inspired by models from countries like the UK, Indian cities should develop Heat Health Alerts that address both daytime and nighttime heat risks and provide nuanced advice on safe activity times.
- **Urban Infrastructure and Design:** Building standards must encourage heat-resilient designs featuring reflective materials and natural ventilation. Public spaces should incorporate more shaded areas, greenery, and accessible water sources.
- **Support for Informal Workers:** Financial assistance should be offered to informal sector labourers during extreme heat episodes, recognising that blanket advisories to stay indoors often don't work for people living in cramped, heat-prone conditions. Policies need to be sensitive to these realities.
- **Public Health and Work Adaptations:** Municipal authorities must ensure the availability of safe drinking water and oral rehydration salts. Workplaces should implement staggered shifts or flexible hours to avoid the hottest parts of the day.
- **Cooling Infrastructure and Innovation:** Expanding summer shelters similar to winter shelters for vulnerable groups, especially homeless individuals and outdoor workers, is essential. State-level initiatives like cool roof policies need to be scaled to the national level.

The Path Forward: Centering People and Equity

Research shows that investing in heat adaptation saves lives and is economically prudent. India's policy response must embrace a comprehensive, long-term framework that coordinates across agencies, provides wage-loss insurance, and drives innovation rooted in scientific evidence. Most importantly, efforts must prioritise people, recognising the disproportionate impact on marginalised groups and striving for equitable outcomes.

Conclusion

Heatwaves in India have evolved beyond a seasonal nuisance into a pressing humanitarian and economic crisis. As global temperatures continue to rise, the imperative for adaptive, inclusive, and resilience-building action grows ever stronger. Addressing heat as a matter of social equity is vital to safeguarding both lives and livelihoods in the years ahead.

India's Complex Employment Challenge in the Era of AI — Obstacles and Future Directions

Background:

Historically, technological waves like the steam engine or assembly line primarily displaced low-skilled manual labour, while the digital revolution later transformed white-collar jobs through software automation and outsourcing. However, the current AI revolution presents a fundamentally different scenario for India, triggering a multi-layered employment crisis, both apparent and hidden.

Dual Nature of the Crisis:

● Visible Issues:

- Youth unemployment remains alarmingly high, with over 80% of jobless individuals being young adults, many holding secondary or higher education.
- A significant fraction (one-third) of youth neither work nor pursue education or training, highlighting a worrying disengagement.
- To meet future demands, India must generate upwards of 90 million jobs by 2030, many in fields that do not yet exist.

● Hidden Issues:

- The evolving nature of work, driven by AI, automation, and data analytics, is transforming job roles across sectors.
- Workers face a pressing question: "How susceptible is my role to being automated or replaced by technology?"

The AI Disruption:

Unlike past disruptions that affected mostly low-skill jobs, AI threatens jobs across the spectrum, from manual labourers to creative professionals like designers and artists, with generative AI increasingly encroaching on creative and analytical tasks.

Adapting through Learning:

- Jobs with low skill requirements but also low risk of automation might persist.

- Roles that are either highly skilled or low-skilled but easily automated face the greatest threat.
- Continuous reskilling and lifelong learning become critical survival tools.
- Essential competencies include:
 - Digital literacy: grasping AI, automation, and digital tools.
 - Data literacy: interpreting and leveraging large datasets effectively.

Educational Transformation — A Human-Centered Model:

- Joseph Aoun's "Humanics" concept outlines three key skill domains:
 - Technical skills to collaborate with machines and boost productivity.
 - Data skills to apply analytical thinking using algorithms.
 - Human skills like creativity, empathy, and contextual judgment that machines cannot replicate.
- Education must shift from rote memorisation toward experiential, interdisciplinary, and ongoing learning models.

Micro-Credentials for Modular Learning:

- Micro-credentials offer short, targeted certifications that can be combined to build expertise, a model gaining global traction.
- India could revamp its rigid higher education system to embrace these modular, interdisciplinary credentials — for example, combining AI tools with social sciences or humanities.

Strategic Recommendations:

- Embed digital and data literacy starting from the school level and train educators to support future-ready skill development.
- Promote accessible, modular lifelong learning over traditional degree pathways.
- Foster technology integration across all sectors — from arts to agriculture — and develop personalised learning paths to prepare for jobs of the future.

Conclusion:

The future work landscape may be uncertain, but India can steer it by fostering adaptable, creative problem solvers across sectors, not just AI engineers, empowering individuals to thrive in a tech-driven global economy.

Decarbonizing India's Logistics: Building a Sustainable Backbone for Development

Context:

India's ambition to become a developed nation by 2047 hinges on inclusive growth powered by a logistics sector that is efficient, robust, and sustainable. However, this vital sector is also among the most carbon-intensive globally, presenting a significant hurdle to India's climate goals, including the net-zero target by 2070.

Environmental Impact of Logistics:

- The sector, encompassing road, rail, air, maritime transport, and warehousing, contributes roughly 13.5% of India's total greenhouse gas emissions.
- Road transport dominates, handling nearly 90% of passengers and 70% of freight, and is responsible for over 88% of logistics emissions. Trucks alone produce about 38% of the sector's CO₂ emissions.
- Maritime and inland waterways currently emit less but are expected to grow as government plans aim to triple cargo and passenger movement on inland waterways and increase coastal shipping by 2030.
- These expansions offer economic benefits but must be managed with environmentally responsible policies.

The Urgent Need for Green Transformation:

- India must balance the logistics sector's growth with sustainability, viewing decarbonization as essential for resilience and global competitiveness.
- Lessons from China and the US show that shifting freight from road to rail — a much cleaner mode — can significantly cut emissions.
- India has electrified much of its rail network and can further increase rail freight's share to reduce its carbon footprint.

Steps for Sustainable Logistics:

● **Road Freight Innovations:**

- Road transport will remain vital, so making it cleaner is crucial.
- Pilot projects like electric trucks powered by overhead electric wires on the Delhi-Jaipur corridor could revolutionise emissions reduction.

● **Maritime and Inland Waterways:**

- Embracing cleaner fuels (LNG, solar, biofuels) for vessels aligns with global efforts to halve shipping emissions by 2050.
- Air transport remains challenging due to fuel constraints, but can improve through sustainable aviation fuels and systemic logistics changes.

Renewable Energy in Warehousing:

- Warehousing consumes significant energy; adopting solar, wind, and geothermal energy in these facilities is key to reducing their carbon footprint, improving cost-efficiency and energy security.

Toward a Sustainable Logistics Future:

- Decarbonising logistics is both a challenge and an opportunity to build a more competitive, resilient, and eco-friendly logistics infrastructure.
- Investments in electrified rail, cleaner fuels, and energy-efficient warehousing can simultaneously fuel economic growth and environmental responsibility.

Conclusion:

India's path to greener logistics is underway but requires strong political will, strategic funding, and collaborative efforts. As the nation advances toward becoming Viksit Bharat, the logistics sector must lead in delivering efficient, inclusive, and sustainable growth.

Understanding Trumponomics: A New Economic Doctrine with Global Implications

Background:

Trumponomics — the economic policies under former U.S. President Donald Trump — marked a stark break from decades of American emphasis on free trade, deregulation, and global integration. Central to this approach is a protectionist stance symbolised by Trump's praise of tariffs as a vital economic tool.

Key Foundations:

● Reindustrialization:

- The offshoring of manufacturing, especially to China, led to significant job losses and social challenges in American industrial regions.
- Manufacturing is seen as vital for middle-class prosperity and national stability.

● National Security:

- Economic self-sufficiency, especially in steel, aluminium, and semiconductors, is framed as a strategic necessity to avoid dependence during geopolitical crises.

● Critique of Free Trade:

- Trumponomics challenges the fairness of global free trade, accusing nations like China of market distortions through subsidies, cheap labour, and intellectual property violations.
- Persistent trade deficits weaken U.S. economic sovereignty and transfer wealth abroad.

Tariffs — Purpose and Impact:

- Intended to reduce the trade deficit by making imports costlier, encouraging domestic production, and counteracting an overvalued U.S. dollar.
- Though tariffs may raise consumer prices, proponents argue that currency adjustments and limited inflationary effects mitigate consumer harm.

Additional Pillars:

- Tax cuts to offset tariff costs and stimulate investment.
- Deregulation to reduce business burdens and boost competitiveness.
- Energy independence through increased domestic oil production to control costs and inflation.

A New Economic Paradigm:

- Trumponomics emphasises strategic autonomy, job creation, and national pride over global economic efficiency.
- It resembles strategies of developing countries balancing growth with social and strategic priorities.
- Critics warn of isolationism and instability, but supporters see it as a necessary disruption for national revival.

Conclusion:

More than a policy set, Trumponomics embodies an economic philosophy centred on nationalism and pragmatism. It seeks to reshape global economic rules in America's favour, sparking renewed debate on globalisation's costs and fairness—conversations likely to influence economic policy worldwide for years to come.

Reimagining India's Bilateral Investment Treaty (BIT) Framework

Context:

The Union Budget for 2024-25 includes plans to overhaul India's 2015 Model Bilateral Investment Treaty (BIT) to better attract foreign capital. Experts recommend adopting a dual-model approach to BITs that reflects India's distinct economic ties, differentiating between countries from which it imports capital and those to which it exports capital.

The 2015 Model BIT – A Decade Marked by Caution:

India's 2015 BIT prioritised protecting national sovereignty and regulatory freedom. Key features included:

- A requirement that local legal remedies be fully exhausted over a minimum five-year period before international arbitration could be pursued.
- A limited and restrictive definition of what constitutes an investment.

These stringent provisions led to the treaty being poorly received globally and discouraged foreign investors.

Dual BIT Models – Tailoring Treaties to Context:

The proposal suggests:

- A defensive BIT designed for capital-importing partnerships, such as with several African nations.
- A more investor-friendly BIT aimed at countries where Indian investments are significant (capital-exporting relationships).

This approach seeks to optimise advantages by aligning treaty terms with the economic roles and expectations in each bilateral relationship.

Limitations of the Dual BIT Strategy:

- **Evolving Economic Roles:** Nations' positions as capital importers or exporters can shift over time—for example, India was a capital importer from the UK in 1994 but has since become a capital exporter. Such fluidity complicates rigid classification.
- **Legal and Diplomatic Consistency:** Maintaining two distinct BIT models signals conflicting legal approaches, particularly concerning investor-state dispute settlement (ISDS) mechanisms. This undermines India's reliability in international legal forums, including UNCITRAL's ongoing ISDS reform discussions.

Reassessing the Most Favoured Nation (MFN) Clause:

- Contrary to some claims that the MFN principle originated in multilateral treaties, historical evidence traces MFN clauses back to bilateral commercial agreements as early as the 17th century.
- MFN clauses in BITs serve to guarantee equitable treatment across treaty partners, reinforcing fairness and the fundamental principle of non-discrimination.

Towards a Cohesive BIT Model:

Rather than multiple treaty frameworks, India should focus on developing a single, well-calibrated BIT that:

- Provides robust protection for investments.
- Preserves sovereign regulatory authority.
- Presents a consistent, principled, and predictable position in international law.

Conclusion:

India's BIT framework must evolve in tandem with shifting global investment patterns while maintaining legal coherence and credibility. A strategically balanced and investor-aware treaty model is essential to safeguard foreign capital inflows and protect the interests of Indian investors overseas.

India's Growing Power Needs and the Strategic Role of Hydrogen

Context:

Achieving a net-zero carbon economy is one of the defining challenges of the century. As

nations shift towards sustainable energy, electrification becomes a cornerstone of this transition. However, this is not merely about substituting fossil fuels with renewables; it requires rethinking industrial processes, energy production, and storage, with nuclear power and hydrogen emerging as critical elements.

Why Electrification Alone Isn't Enough:

Much fossil fuel use today is outside electricity generation, particularly in providing heat and molecular inputs for industry. For example:

- Coal-derived carbon is essential for steelmaking.
- Hydrogen from natural gas is key for ammonia synthesis, vital for fertilisers.

To decarbonise, these fossil-based feedstocks must be replaced with cleaner alternatives, making hydrogen crucial both as an energy carrier and a chemical feedstock. For instance, hydrogen can substitute carbon in iron ore reduction, enabling cleaner steel production. Strategic hydrogen deployment complements electrification, especially where direct electrification is unfeasible or inefficient.

Rising Power Demand and Nuclear Energy's Role:

India's power demand is expected to surge as it advances toward a developed, net-zero future. While renewables like solar, wind, and hydropower are essential, they cannot fully meet this rising need alone. Nuclear energy's ability to provide reliable, continuous power makes it indispensable. India aims for 100 GW of nuclear capacity by 2047, with NPCIL driving this through Pressurised Heavy Water Reactors (PHWRs) in Gujarat, Rajasthan, and Haryana, and developing 220 MW Bharat Small Reactors for industrial use, leveraging domestic expertise.

Balancing Low-Carbon Energy Sources: The Grid Challenge

- **Grid Stability:** Traditional fossil fuel plants can quickly adjust output to balance supply and demand. However, renewable sources are intermittent and variable—solar peaks during daytime, wind fluctuates unpredictably, and hydro depends on geography and seasons. Nuclear plants operate best at steady output and are less flexible to load changes.
- **Limitations of Flexing Nuclear:** Modulating nuclear power is technically complex and economically inefficient, as nuclear plants are designed for continuous operation to maximise returns.

Innovative Solutions: Hydrogen Electrolysis for Grid Balancing

- Electrolysers producing hydrogen from electricity can act as flexible grid loads, absorbing excess power during renewable surpluses, preventing energy waste, and aiding grid stability.

- This approach decouples electricity supply from immediate demand by converting surplus electricity into hydrogen, which serves as both an energy carrier and industrial feedstock, thereby enhancing reliability and reducing emissions.

Conclusion:

Transitioning to net-zero is multifaceted, requiring transformation across energy generation, industry, and policy. Electrification, integrated with strategic hydrogen use and supported by stable nuclear power, is central to decarbonization. Forward-thinking policies that redefine hydrogen's role and encourage integrated energy solutions will accelerate this journey.

Benefits of Genetic Mapping for India's Population

Why It Matters:

Preliminary results from the Genome India project, which sequenced the whole genomes of nearly 10,000 healthy and unrelated individuals from 83 diverse Indian population groups, have been published in ***Nature Genetics***. This landmark study offers unprecedented insights into India's genetic diversity.

Project Overview:

- Launched in January 2020 and funded by the Department of Biotechnology.
- Samples and phenotype data (such as height, weight, and blood pressure) were collected from 10,074 individuals representing 83 population groups—30 tribal and 53 non-tribal—spread across the country.
- After excluding two populations, analysis was conducted on data from 9,772 participants.
- The project involves 20 collaborating institutions, including premier research centres across India.

Sampling Strategy:

- Participants were sampled from over 100 geographic locations, ensuring representation of major language families linked to genetic diversity: Indo-European, Dravidian, Austro-Asiatic, and Tibeto-Burman.
- Samples included unrelated individuals and some parent-child pairs to identify new mutations.
- Notably excluded were some ancient Andamanese groups due to their unique genetic profiles.

Key Genetic Insights:

- The study identified around 180 million genetic mutations—130 million on autosomes and 50 million on sex chromosomes.
- The vast majority of these variations lie in non-coding genome regions, which are crucial for understanding human evolutionary history, especially in a country like India, where endogamous groups have preserved distinct genetic identities.
- Endogamy has led to population-specific mutations, including disease-related variants at higher frequencies.
- India's genetic landscape has been underrepresented in global studies dominated by European datasets, and this project helps fill that gap.

Medical and Public Health Implications:

- The data paves the way for research into genetic links to diseases prevalent in Indian populations.
- It supports precision medicine tailored to India's genetic makeup, potentially improving diagnosis, treatment, and prevention.
- Affordable, population-specific diagnostic tools could emerge, along with targeted public health strategies to address genetic disorders.

Rising Debate Over MSME Classification Changes in Budget 2025

Why It's Making Headlines:

The Union Budget 2025 has introduced major changes to how micro, small, and medium enterprises (MSMEs) are defined, sparking intense discussions among industry players.

Details of the New Classification:

Starting April 1, 2025, the government is raising both investment and turnover limits for MSMEs significantly. The investment ceiling has been multiplied by 2.5 times, and turnover thresholds have doubled. Specifically:

- **Micro enterprises** now include businesses with investment up to ₹2.5 crore (previously ₹1 crore) and turnover up to ₹10 crore (previously ₹5 crore).
- **Small enterprises** have an increased investment limit of ₹25 crore (up from ₹10 crore) and a turnover ceiling of ₹100 crore.
- **Medium enterprises** can now have investments up to ₹125 crore (up from ₹50 crore) and turnover up to ₹500 crore.

The government expects these adjustments to encourage business growth, improve access to financing, and boost employment.

Industry Support:

Groups like the Federation of Indian Micro and Small & Medium Enterprises (FISME) have applauded the revisions, highlighting that:

- The update reflects inflation and higher input costs.
- It allows medium enterprises to expand vertically rather than creating parallel small units.
- The changes may attract more foreign investment to the MSME sector without cutting off government benefits.

Historically, many firms avoid growing beyond small-scale status to retain incentives, but the new rules aim to counter this by broadening the classification.

Opposition from Micro and Small Enterprises:

Conversely, organisations representing smaller MSMEs have strongly criticised the move, cautioning that:

- Medium enterprises, which make up less than 0.01% of the MSME ecosystem, could dominate the benefits intended mostly for the 99.99% of micro and small units.
- Public procurement quotas and priority sector lending may increasingly favour larger firms, sidelining smaller businesses.
- Micro units already face challenges securing credit, as banks prefer lending to medium enterprises due to higher loan sizes and lower risk.

These groups have demanded either a return to the previous classification or the creation of a separate department to protect micro and small enterprises' interests.

Wider Impact on the MSME Sector:

The reclassification could reshape MSME support structures:

- **Public procurement:** With medium enterprises grouped as “small,” competition for government contracts under the 25% quota may squeeze out micro firms.
- **Credit access:** Although 8% of priority sector lending is earmarked for micro units, in practice, they struggle to obtain loans compared to larger units.
- **Post-pandemic recovery:** Given uneven recovery from COVID-19 and reliance on outdated 2015-16 data, some argue the timing and basis for change are premature.

- **Addressing the "Missing Middle":** The policy aims to encourage small firms to grow, breaking the pattern where firms stay small just to keep benefits, which leads to inefficient horizontal expansion.

Looking Ahead:

As India aims to build a competitive MSME sector globally, periodic policy updates are necessary. However, it's critical to ensure that micro and small enterprises, which form the backbone of the industry, aren't overshadowed by larger companies. The success of the new classification will depend on fair benefit distribution and effective efforts to improve credit availability, market access, and ease of doing business for the smallest players.

Poverty Reduction and Inclusive Growth in India: A Review (2011-12 to 2023-24)

Context:

Democracy is more than just elections; it's about addressing the needs of vulnerable groups. This article examines how poverty has evolved in India between 2011-12 and 2023-24, focusing on various social and religious communities.

Poverty Measurement – The Rangarajan Line:

The study uses the poverty line defined by the C Rangarajan Committee (2011-12), which:

- Employs the Modified Mixed Recall Period (MMRP) method for precise household expenditure tracking.
- Aligns with Indian Council of Medical Research (ICMR) standards for calorie intake.
- Gives greater weight to non-food essentials, especially in urban areas.
- Updates 2023-24 poverty estimates using the Consumer Price Index (CPI).

Data and Methodology:

Data is drawn from Household Consumption Expenditure Surveys (HCES):

- 2011-12: over 100,000 households surveyed.
 - 2023-24: over 250,000 households surveyed.
- The surveys were conducted by the Ministry of Statistics and Programme Implementation (MoSPI), Government of India.

Key Findings:

- **Overall poverty decline:**

○ Rural poverty dropped from 30.4% to 3.9%.

○ Urban poverty fell from 26.4% to 3.9%.

● **By religion:**

○ Muslims: rural poverty declined from 31.7% to 2.4%, urban from 39.4% to 5.7%.

○ Hindus: rural poverty from 30.9% to 4%, urban from 24.4% to 3.7%.

○ The urban poverty gap between Muslims and Hindus narrowed significantly, from 15 percentage points to just 2.

● **By social groups:**

○ Scheduled Tribes (STs): rural poverty fell from 49.5% to 12.2%, urban from 38.2% to 9.9%, with poverty gaps relative to the general population shrinking considerably.

○ Scheduled Castes (SCs): rural poverty gap reduced from 17.4 to 2.6 percentage points; urban poverty fell sharply, and gaps narrowed.

○ Other Backwards Classes (OBCs) also saw a decrease from 30.4% to 3.6%.

Poverty Alleviation Programs:

● **Rural initiatives:** MGNREGS, PMAY-Gramin, DAY-NRLM, DDU-GKY, NSAP, and watershed development under PMKSY.

● **Urban programs:** National Urban Livelihoods Mission, Jal Jeevan Mission (Urban), urban mobility enhancement schemes, PMAY-Urban, and AMRUT.

Conclusion – Inclusive Growth and Democracy:

The study underscores significant poverty reduction across communities, highlighting the success of targeted social schemes and the role of inclusive governance. The updated CPI-based poverty estimates for 2023-24 reflect India's progress toward equitable growth.

Farm Mechanisation Beyond Tractors Why is this Important?

In India, farm mechanisation is often equated with tractors, which have largely replaced bullocks for key agricultural activities such as ploughing, cultivating, and transporting goods. Tractors provide significantly more power — Indian models generally offer between 41 to 50 horsepower, compared to just 1 horsepower from a bullock. Each year, approximately

900,000 tractors are sold in India, with a typical 45 hp tractor priced around Rs 7 lakh, contributing to a massive market worth Rs 60,000 crore.

Expanding Farm Mechanisation Beyond Tractors

Mechanisation in farming goes far beyond just tractors. While tractors supply the necessary power, the real productivity depends on the implements attached to them, such as rotavators.

● **Benefits of Tractor-Driven Implements**

- Bullock-drawn ploughs are mainly limited to primary tillage and operate at shallow depths of 4-6 inches.
- In contrast, tractor-mounted rotavators can execute both primary and secondary tillage in a single pass, reaching deeper into the soil at 8-12 inches.
- This deeper tillage improves soil aeration, enhances water absorption, and facilitates better root development.

● **Growing Demand for Farm Equipment**

- Though the tractor market is dominant, the market for related farm machinery, such as rotavators, is expanding steadily.
- Rotavators alone account for sales of about 200,000 units annually, generating Rs 2,000 crore in revenue.

● **Key Industry Players**

- Prominent companies in this space include Tirth Agro Technology, Shaktiman, Mahindra & Mahindra, and International Tractors/Sonalika.

Rapid Growth in the Farm Machinery Sector

Excluding tractors, India's farm machinery market is valued at over Rs 10,000 crore. Around 60% of this market is held by organised players, while 40% belongs to the unorganised sector. Globally, farm machinery sales (\$100 billion) surpass tractor sales (\$60 billion). However, in India, tractors dominate with Rs 60,000 crore sales compared to smaller farm machinery sales, indicating strong potential for growth.

● **Wide Range of Farm Machinery**

- Farm machinery encompasses tractor-mounted implements such as tillage tools, sprayers, balers, loaders, trolleys, and laser land levellers. It also includes self-propelled equipment like harvesters, rice transplanters, and

sugarcane harvesters.

● Addressing Labour Shortages with Mechanisation

- Implementers like rotavators and subsoilers improve soil health through deep tillage. Meanwhile, harvesting machines and transplanters are critical for addressing the shortage of agricultural labour.

● Harvester Combine Market Details

- Wheel-type harvester combines sell around 8,000 units annually, valued at Rs 2,000 crore, with each priced at Rs 25 lakh.
- Crawler tracks, specially used for paddy in wetlands, represent a market of 7,000 units worth Rs 1,750 crore.
- Tractor-mounted combine harvesters sell 3,000 to 3,500 units annually, priced around Rs 10 lakh each, totalling Rs 300-350 crore.

● Scope for Future Expansion

- Indian farm mechanisation still trails behind global standards, offering ample room to grow, particularly through the modernisation of harvesting and tillage equipment.

Transition from Tractors to Specialised Machines

Many farming tasks that were once performed manually are increasingly being mechanised, improving efficiency and cutting costs.

● Mechanised Harvesting: Faster and Cheaper

- Manually harvesting one acre of wheat requires 5 to 7 labourers for a full day, plus extra time for threshing, costing Rs 5,000 or more.
- A combine harvester can do the same in 25-30 minutes at a lower cost of Rs 2,000-3,000 per acre, making mechanised harvesting highly attractive.

● Rising Use of Machines for Paddy Transplanting

- Mechanical paddy transplanting is gaining ground, especially in southern India.
- The rice transplanter market sells about 3,000 units annually, with 2,750 walk-behind models priced at Rs 3 lakh each and 250 ride-on versions costing Rs 10 lakh each.

● Major Manufacturers Expanding into Farm Equipment

- Leading tractor companies are expanding into farm implements due to increasing mechanisation demand.
- Mahindra & Mahindra (M&M) has set up a dedicated farm equipment facility in Pithampur, Madhya Pradesh, spread over 23.7 acres with an investment of Rs 100 crore.
 - The plant can produce 1,200 harvesters and 3,300 rice transplanters annually.
 - Facilities include chassis fabrication, in-house painting, and assembly.
- M&M also runs a rotavator factory in Nabha, Punjab, strengthening its foothold in farm mechanisation.

Alternative Approach: Custom Hiring of Machinery

While tractors are versatile for many farming activities, specialised machines like sugarcane harvesters, combines, and Super Seeders serve specific crops and are costly for individual farmers to buy.

● Custom Hiring as a Cost-Effective Solution

- Although there is growing demand for advanced machines, affordability remains a major barrier for many farmers.
- Custom hiring services, where owners rent out their machines to multiple farmers, have emerged as a practical and scalable solution.

● Towards Sustainable Farm Mechanisation

- The owner-operator model, in which entrepreneurs invest in machinery and provide services to numerous farmers, is becoming a profitable and sustainable way to boost mechanisation in Indian agriculture.

Job Creation in India — Challenges and Policy Needs

Context:

Since 2017-18, India's working-age population has increased by roughly 90 million people, but formal sector jobs have not kept pace, increasing by only 60 million. This results in a shortfall of about 5 million jobs annually. Most new employment comes from informal and self-employed sectors, indicating significant challenges in both the quantity and quality of job opportunities.

Increasing Capital Intensity in Production

Technological Shifts and Labour Decline:

As technology advances, many labour-intensive industries are transitioning towards capital-intensive methods, reducing dependence on manual labour.

Summary: Mechanisation and Job Dynamics in Indian Agriculture.

- India's farm mechanisation is evolving beyond tractors, integrating a wide variety of machines that improve productivity and address labour shortages.
- Mechanised harvesting and transplanting have proven cost-effective and time-saving compared to manual labour.
- The market for specialised machinery is expanding rapidly, with major manufacturers investing in new facilities and technologies.
- Custom hiring models help make expensive equipment accessible to small farmers.
- The country's working-age population growth outpaces formal job creation, pushing industries toward more capital-intensive production, including farm mechanisation to enhance efficiency and meet labour market challenges.

Prelims Current Affairs April 2025

1st April

1. Ulhas River (Maharashtra)

- A west-flowing river originating from the Sahyadri ranges in Raigad district at 600m elevation.
- Empties into the Arabian Sea.
- **Drainage Area:** 4,637 sq. km (entirely in Maharashtra).
- **Major Tributaries:** Pej, Barvi, Bhivapuri, Murbari, Kalu, Shari, Bhasta, Salpe, Poshir, and Shilar.
- **Key Right-Bank Tributaries:** Kalu and Bhasta (covering 7% of total catchment).

2. Chicken's Neck (Siliguri Corridor)

- A narrow land strip in West Bengal linking India's mainland with the Northeast.
- Bounded by: Nepal (W), Bhutan (N), Bangladesh (S).
- Strategically sensitive due to proximity to **Chumbi Valley (Tibet, China)**.
- Recently, Bangladesh invited Chinese investment in a river conservation project near this corridor.

3. Operation Brahma

- India's **humanitarian relief effort** post the 7.7 magnitude earthquake in Myanmar (March 28, 2025).
- NDRF deployed 80-member team with advanced rescue tools.
- Indian Army sent a medical task force.

- **Naval Support:** INS Satpura & INS Savitri delivered 40 tonnes of aid to Yangon.

4. Kasampatti Sacred Grove (Tamil Nadu)

- Also known as **Veera Kovil Sacred Grove** in Dindigul district.
- Spread over 4.97 hectares near Alagarmalai Reserve Forest, surrounded by mango orchards.
- **Declared as Tamil Nadu's 2nd Biodiversity Heritage Site** under the Biological Diversity Act, 2002.

5. Amur Tiger (*Panthera tigris altaica*)

- Also called the **Siberian Tiger**.
- **IUCN Status:** Endangered.
- **Population:** ~265–486 (Russia); smaller numbers in China and North Korea.
- **Habitat:** Birch forests of eastern Russia.
- **Adaptations:** Thick fur, large body, and lighter coat suited for cold climates.
- **Lifespan:** 10–15 years in wild; up to 20 in captivity.

6. India Energy Statistics 2025 – Key Highlights

- **Primary Energy Supply:** Grew 7.8%, reaching 9,03,158 KToE.
- **Coal:** 79% of domestic energy supply; 60.21% of Total Primary Energy Supply (TPES).
- **Renewable Potential:** 21,09,655 MW (led by solar and wind).
- **Renewable Electricity:** Increased from 2,05,608 GWh (2014–15) to 3,70,320 GWh (2023–24) at 6.76% CAGR.
- **Per Capita Energy Use:** 18,410 MJ/person (25% growth in 10 years).

7. Deep Sea Mining

- **Definition:** Extraction of mineral-rich resources (nodules, sulphides, crusts) from ocean floors >200m depth.
- **Methods:**
 - Robotic ploughs for collecting polymetallic nodules.
 - AI-driven machines with vacuum pumps.
 - Onboard processing; waste usually discharged back into the sea.

8. P4 Model (Public-Private-People Partnership)

- A mission-mode program aiming for **inclusive socio-economic transformation**.
- **Goal:** Uplift marginalised families by eradicating poverty and creating model households ("Bangaru Kutumbam").

9. Malaria – Key Points

- A **vector-borne**, non-contagious disease prevalent in tropical regions.

- **Cause:** Transmission through female *Anopheles* mosquito bites.
- **Dangerous Parasite Strains:** *Plasmodium falciparum* and *Plasmodium vivax*.
- Both preventable and treatable.

2nd-8th April

1. Arctic Council

- Established via the Ottawa Declaration (1996) as an intergovernmental body for Arctic governance.
- **Members (8):** Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden, USA — they hold land rights and EEZ access.
- **Permanent Participants:** 6 Indigenous groups from the Arctic.
- **Observers:** 13 countries (incl. India), 13 IGOs, 12 NGOs.
- **Decision-Making:** Requires consensus among 8 states with consultation of permanent participants.

2. Exercise Tiger Triumph

- A joint tri-service HADR (Humanitarian Assistance & Disaster Relief) exercise between India and the U.S.
- Objective: Improve interoperability and draft SOPs for a Combined Coordination Centre (CCC).

3. NITI-NCAER States Economic Forum Portal

- A joint initiative by NITI Aayog & NCAER covering data from 1990-91 to 2022-23.
- Features:
 - **State Reports:** Macro/fiscal summaries.
 - **Data Repository:** Demographics, fiscal, economy, education, health.
 - **Dashboard:** Visual trends.
 - **Commentary:** Research on state finances.
- Aids comparative analysis, informed policy formulation, and evidence-based research.

4. Tribhuvandas Patel

- Gandhian and freedom fighter (1903-1994); active in Civil Disobedience and Salt Satyagraha.
- **Cooperative Dairy Movement Pioneer:** Founded AMUL (1946) to protect dairy farmers.
- Institutions: GCMF, NDDB, IRMA.
- Emphasized inclusive cooperatives beyond caste/community.

- Awards: Ramon Magsaysay (1963), Padma Bhushan (1964).

5. NAFLD / MASLD

- Non-Alcoholic Fatty Liver Disease now renamed Metabolic Dysfunction-Associated Steatotic Liver Disease.
- Spectrum: NAFL to NASH (may cause liver failure or cirrhosis).
- Linked to obesity, T2D, hypertension, kidney issues.
- No specific drug; lifestyle management is key.

6. Mahabodhi Temple

- Built by Ashoka in 260 BCE; current structure from Gupta era (5th–6th CE).
- Located in Bodh Gaya, Bihar — Buddha's enlightenment site.
- UNESCO World Heritage Site; managed by a joint committee post-1949 Bodh Gaya Temple Act.

7. Nankai Trough

- A subduction zone along Japan's Pacific coast (~800 km).
- Where the Philippine Sea Plate subducts beneath the Eurasian Plate.

8. Asbestos

- Group of 6 fibrous minerals used for heat/fire resistance.
- Exposure leads to diseases like Asbestosis, Mesothelioma, due to accumulation in lungs.

9. Naini Lake

- Freshwater tectonic lake in Kumaon, Uttarakhand — 3rd largest by area.
- Crescent-shaped due to landslides. Recently hit 5-year low in water level (4.7 ft).

10. Waqf Bill Amendments

- Removes "Waqf by use" concept — properties need documented proof.
- Shifts property survey responsibility to District Collector.
- Allows non-Muslim CEOs/members on Waqf Boards.
- Applies Limitation Act — adverse possession allowed after 12 years.

11. Government Securities (G-Secs)

- Tradeable instruments issued by Centre/States as debt acknowledgment.
- **Types:** Treasury Bills (<1 year), Bonds (≥1 year).
- State securities called SDLs.
- Considered risk-free; managed by RBI.

12. Saturn's New Moons

- Astronomers discovered 128 more moons around Saturn, now totaling 274 — most in solar system.

13. Green Credit Programme

- Launched by MoEFCC at COP28 (Dec 2023).
- Promotes voluntary environmental actions via tradable green credits.
- Linked to Mission LiFE.
- Open to individuals, companies, PSUs, institutions.

14. Sagaing Fault

- Major strike-slip fault in Myanmar (~1,500 km).
- Separates Indian and Eurasian plates; earthquake-prone.

15. Fluoride Contamination

- Detected in 120 UP hamlets; some >2 mg/L.
- Causes dental/skeletal fluorosis.
- WHO limit: 1.5 mg/L.
- Rajasthan, Telangana, Andhra Pradesh, Karnataka are highly affected.

16. Katchatheevu Island

- 285-acre uninhabited island in Palk Strait; religious significance (St. Anthony's Church).
- Tamil Nadu Assembly seeks its retrieval from Sri Lanka.

17. Balpakram National Park (Meghalaya)

- Rare Binturong spotted near buffer zone.
- Known for high winds and deep gorge (compared to Grand Canyon).
- Located in West Garo Hills.

18. Aqueduct Discovery

- Roman aqueduct found under Rusovce Manor, Slovakia.
- Used historically for water supply and irrigation.
- Romans perfected aqueduct building.

19. Chhatrapati Shivaji Maharaj (1630–1680)

- Inspired by Bhakti saints; led Swarajya movement.
- **Administration:** Formed Ashta Pradhan Council; introduced Ryotwari system.
- Strong naval power to resist Mughal/European powers.

20. Chile Overview

- Long narrow coastal country in South America.
- Home to the Atacama Desert (driest), Cape Horn (stormy seas).

- On the Pacific Ring of Fire; rich in copper (Escondida mine).

21. Fluoride – Health Impact

- Occurs naturally; also from coal burning.
- In small doses: aids dental/bone health.
- Excess: causes fluorosis, bone deformities, environmental hazards.

22. Bond Yield

- Yield = annual return from bond (in %).
- **Types:**
 - Current Yield = $\text{Coupon} \div \text{Market Price}$.
 - YTM: Return if held to maturity.
 - YTC/YTW: Returns if redeemed early or under worst-case.
- Inverse relation between price and yield.
- Indicates investment return; affected by interest rates & economy.

23. Ream Naval Base

Ream Naval Base in Cambodia has drawn international scrutiny due to expansion activities supported by China, sparking concerns over a possible Chinese military foothold in the area. Strategically, the base is crucial as it lies near the Malacca Strait, a key maritime route essential for global trade and energy transportation.

24. Saryu River

The Saryu (or Sarju) River flows through Uttarakhand and Uttar Pradesh. It originates from Sarmul in the Bageshwar district, on the southern slopes of Nanda Kot in the Kumaon Himalayas. The river passes through towns like Kapkot and Bageshwar, merging with the Sharada (Kali) River at Pancheshwar near the India-Nepal border. The Sharada then joins the Ghaghara River in Uttar Pradesh. In its lower stretch, especially in Ayodhya—associated with Lord Rama—the Ghaghara is also known as the Saryu.

25. Dwarkadhish Temple

Located in Dwarka, Gujarat, this temple is devoted to Lord Krishna, referred to as Dwarkadhish (King of Dwarka). It is one of the Char Dham pilgrimage sites along with Badrinath, Rameshwaram, and Puri. Said to have been originally built around 200 BCE by Krishna's great-grandson Vajranabha, the five-tiered temple rests on 72 limestone pillars and reflects Chalukya-style architecture. It follows the Pushtimarg tradition (Shuddhadvaita philosophy) of Vallabhacharya and is linked to the Nathdwara Temple in Rajasthan.

26. Technology and Innovation Report 2025

Published by the UN Conference on Trade and Development (UNCTAD), the 2025 edition focuses on **Inclusive Artificial Intelligence for Development**. It aims to guide

policymakers in forming equitable and inclusive science, technology, and innovation (STI) policies amid evolving AI technologies.

27. Mukundra Hills Tiger Reserve

Established in 2013 near Kota, Rajasthan, the reserve includes Mukundra National Park, Dara and Jawahar Sagar Sanctuaries, and parts of the Chambal Sanctuary. Originally the hunting grounds of the Kota royalty, the reserve features dry deciduous forests and is crisscrossed by four rivers—Chambal, Kali, Ahu, and Ramzan.

April 9

1. River Blindness (*Onchocerciasis*)

A parasitic disease caused by *Onchocerca volvulus*, spread by Simulium blackflies near fast-flowing rivers. It is the second leading infectious cause of blindness worldwide and mainly affects rural populations in sub-Saharan Africa, Latin America, and Yemen. Treatment involves mass administration of ivermectin. WHO has declared several countries, including Niger (first in Africa), free of the disease.

2. Hadean Protocrust

Refers to Earth's earliest crust formed about 6 billion years ago during the Hadean Eon. This era was characterized by extreme temperatures, widespread volcanism, and meteor impacts. As Earth's magma ocean cooled, early crustal fragments formed—some of which developed into the planet's first proto-continents.

3. Semaglutide

A GLP-1 receptor agonist that mimics natural hormones to regulate blood sugar and appetite. It treats type 2 diabetes and helps with weight loss. Available as injections and tablets (e.g., Rybelsus), it showed a 14% drop in major cardiovascular events among diabetic patients with heart or kidney conditions in the 2019 SOUL trial.

4. Western Woolly Flying Squirrel

Scientific name: *Eupetaurus cinereus*. Native to the northwestern Himalayas in Pakistan and India, it lives in high-altitude conifer forests. Once believed extinct, it was rediscovered in 1994 after nearly 70 years. It is one of Asia's rarest mammals and is classified as Endangered by the IUCN.

5. Women and Men in India 2024

Released by MoSPI, the report presents gender-disaggregated data. It notes progress in female literacy and education (notably, improved Gender Parity Index), a rise in female labor force participation (from 49.8% in 2017–18 to 60.1% in 2023–24), and increased financial inclusion. Female voter turnout in 2024 (65.8%) exceeded that of males.

Women's involvement in startups and ownership of DEMAT accounts have grown significantly.

6. World Health Day 2025

Celebrated annually on April 7 to commemorate WHO's establishment in 1948. The 2025 theme is "**Healthy beginnings, hopeful futures**", focusing on early health interventions for long-term well-being.

10th -13th April

1. Three Gorges Antarctic Eye

China has installed a 3.2-metre radio/millimetre-wave telescope called the **Three Gorges Antarctic Eye** at its Zhongshan Station in Antarctica. It aims to observe interstellar gases and star formation. The facility was built to endure harsh Antarctic conditions and is a collaboration between China Three Gorges University and Shanghai Normal University.

2. Megaliths

Recently discovered megalithic remains in Manimoola village, Kerala, date back over 2,000 years. Used for burial and ritualistic purposes during the Iron Age (1500–500 BCE), megaliths include dolmenoid cists, cairn circles, capstones, and menhirs. These large stone structures are important archaeological markers of ancient societies.

3. POEM-4

The fourth **PSLV Orbital Experiment Module (POEM-4)** by ISRO reused the spent PS4 stage of a PSLV rocket for hosting scientific payloads. Launched with SpaDeX satellites on Dec 30, 2024, it carried 24 payloads (14 from ISRO, 10 from private players), including robotic arms and debris capture tools. After its mission, it was lowered to a 350 km orbit and passivated for safety.

4. Acute Promyelocytic Leukemia (APL)

A rare and aggressive form of Acute Myeloid Leukemia (AML), caused by a PML-RARA gene fusion. APL disrupts normal blood cell development, leading to low immunity and risk of fatal bleeding. Symptoms include fatigue, fever, and bone pain. It is curable if detected early through blood tests and treated promptly.

5. Mount Kanlaon

An active stratovolcano on Negros Island in the Philippines, part of the Pacific Ring of Fire. Features pyroclastic cones, craters, and a caldera lake. It is rich in biodiversity and plays a crucial role in the region's hydrology.

6. Dokra Art

An ancient metal craft that dates back over 4,000 years to the Indus Valley Civilization (e.g., the Dancing Girl of Mohenjo-daro). Practiced by the Dhokra Damar tribes, it uses the *lost-wax casting technique*, ensuring each artifact is unique. Bankura Dokra from West Bengal has a GI tag since 2008.

7. Palna Scheme

Revamped from the National Creche Scheme in 2022, **Palna** is part of the 'Samarthya' sub-scheme under **Mission Shakti**. It is a Centrally Sponsored Scheme aimed at providing childcare support. The funding ratio is 60:40 between Centre and States (90:10 for NE and special category states; 100% for UTs without legislature).

8. Equivalence Certificate

This document verifies that a foreign educational qualification is equivalent to an Indian certificate or degree of the same level. It is required for further education or jobs in India.

9. NaMPET (National Mission on Power Electronics Technology)

A MeitY initiative implemented by C-DAC Thiruvananthapuram to promote R&D and deployment in power electronics. Focus areas include smart grids, e-mobility, high-voltage technologies, and support for startups through technology transfer and outreach.

10. De-extinction

- *Colossal Biosciences* in the US announced the birth of three gene-edited grey wolf pups.
- De-extinction aims to bring back extinct species using cloning and gene editing.
- Dire wolf (extinct ~13,000 years ago) DNA was extracted and compared with modern canines.
- Scientists edited 14 genes in grey wolf DNA, implanted embryos in dogs, resulting in pups with dire wolf traits.

11. Inter-Parliamentary Union (IPU)

- Established in **1889**, IPU is the first global political body promoting democracy and protecting MPs' rights.
- Comprises **181 member parliaments**, headquartered in **Geneva**.
- Holds **biannual assemblies**, governed by a **Governing Council** with 3 MPs per member.
- Slogan: "**For democracy. For everyone.**"

12. Biomass Satellite Mission

- A **European Space Agency** mission launched by Vega C rocket from French Guiana.
- Orbits Earth at ~666 km in a sun-synchronous orbit.

- Carries the first **P-band radar** to scan forest biomass, especially trunks and stems.
- Generates 3D maps of dense forests to better understand the carbon cycle.

13. Electronics Components Manufacturing Scheme

- Launched by **MeitY** to strengthen domestic passive electronics production.
- India's first **PLI scheme for components** like capacitors, resistors, and connectors.
- Offers **turnover-linked, capex-linked, and hybrid** incentives (1–10%).
- Mandatory employment generation; complements **India Semiconductor Mission**.

14. Theobaldius konkanensis

- A new **land snail species** discovered in Maharashtra's Konkan region.
- Endemic to **northern Western Ghats**; active June–September.
- Lives on damp forest floors and branches in evergreen and semi-evergreen forests.

15. Lodhi Garden

- Located in **New Delhi**, turned 89 years old as a public garden.
- Originally **Bagh-e-Jud**, tied to **Sayyid and Lodi dynasties** with Indo-Islamic tombs.
- Re-developed during British rule; inaugurated on **9 April 1936** by Lady Willingdon.

16. Small Hive Beetle (SHB)

- An invasive pest originally from **Sub-Saharan Africa**, affecting honey bee colonies globally.
- Lays eggs in hives; larvae contaminate honey and destroy brood.
- Listed as **Invasive Alien Species** and **notifiable disease** by OIE.
- India's climate may enable its rapid spread.

17. Volatility Index (VIX)

- Trademarked by **CBOE**, VIX indicates market's expected short-term volatility.
- Expressed as **annualized percentage**, derived from option pricing data.
- Higher VIX = greater uncertainty and risk.

18. Central Pollution Control Board (CPCB)

- A statutory body under **MoEF&CC**, formed via **Air Act, 1981**.
- Also functions under the **Environment Protection Act, 1986**.
- Provides technical support and policy enforcement on pollution control.

19. Hantavirus

- Transmitted by **black rats** in rural **Madagascar**.
- Spread through rodent **urine, feces, and saliva** (aerosolized); human-to-human spread is rare.
- Study shows no other species (like bats) were carriers.

20. Critical Minerals

- Essential for **technology and national security**, but prone to supply disruptions.
- **30 minerals** identified as critical by the Ministry of Mines.
- 24 added to **MMDR Act, 1957** (Part D, Schedule I) for central auctioning.
- **KABIL** signed MoUs with **Argentina and Australia**.
- **National Critical Mineral Mission** ensures mineral availability for green goals.

21. Arctic Biome

- The **Arctic tundra**, once a carbon sink, is turning into a carbon source due to **permafrost thaw** and **wildfires**.
- Covers **5 million km²** in Canada, Greenland, and Eurasia.
- Harsh climate (-60°C to 15.5°C); minimal vegetation and human activity.
- Increasing resource extraction poses threats to biodiversity.

22. Sickle Cell Disease (SCD)

- A genetic blood disorder; RBCs become sickle-shaped, blocking blood flow and causing anemia.
- Inherited when both parents pass on the faulty gene.
- Symptoms: pain, fatigue, swelling, infections.
- Treated with **bone marrow transplant, symptom relief, and gene therapy** (UK approved).

23. Bear Market

- Characterized by a **≥20% fall in asset prices** over at least two months.
- Associated with **investor pessimism, economic slowdown**, and short selling.
- Opposite of a bull market.

APRIL 14

1. Kathak

- Derived from '**Katha**' (**story**); evolved from temple storytelling to Mughal court dance.
- Main gharanas: **Lucknow, Jaipur, Benaras**.
- Emphasizes **footwork, spins, mudras**, and **Hindustani music**.

- Exponents: **Birju Maharaj, Sitara Devi, Kumudini Lakhia** (recently passed away).

2. India-Middle East-Europe Economic Corridor (IMEEC)

- Launched at **G20 Summit 2023**, connects **India, Middle East, Europe** via Eastern and Northern corridors.
- Part of the **Partnership for Global Infrastructure and Investment (PGII)**.
- A counter-strategy to **China's BRI**.

3. Microplastics

- Particles ≤ 5 mm (nanoplastics $< 1,000$ nm); either **primary** (from products) or **secondary** (from degradation).
- Ingested by organisms, cause **toxicity and bioaccumulation**.
- Can enter **plant leaves** via stomata; public health impact still being studied.

4. rt-LAMP Assay

- A rapid TB diagnostic tool; detects as few as **10 DNA copies/ μ L**.
- Operates at **one temperature**, unlike RT-PCR.
- Uses **fluorescent dye Syto 16**; results in **10–20 minutes**.
- Approved by CDSCO; being evaluated by ICMR and WHO.

5. Phawngpui National Park

- Also called **Blue Mountain National Park**; located in **southeast Mizoram**.
- Highest peak in Mizoram (2,157 m); sacred to local Mizo communities.
- Overlooks **Chhintuipui River**; often appears blue due to cloud cover.

APRIL 15

1. Hudson River

- Flows **315 miles** mainly through New York, partially bordering New Jersey.
- Originates in **Adirondack Mountains**; drains into Upper New York Bay.
- **Mast bumping** is a helicopter danger where low-G forces cause rotor damage or detachment.

2. Pakke Tiger Reserve

- Located in **East Kameng, Arunachal Pradesh**, spans 862 sq.km.
- Bordered by **Nameri National Park, Tenga, and Doimara forests**.
- Habitat for tigers, hornbills, elephants; supported by **Nyishi tribe**.
- Won **India Biodiversity Award 2016**.

3. Mir Alam Tank

- A **260-acre** freshwater reservoir in **Hyderabad**, predating Osman Sagar.
- Built by **Mir Alam Bahadur** in 1804; completed in two years with 21 arches.

- Supplied city water using nearby streams and springs.

4. *Electroreception*

- Ability to detect **electric fields**, used by aquatic species like sharks.
- Recently found in **fruit fly larvae**, indicating broader biological relevance.
- Discovered in 1960s by scientists like **Theodore H. Bullock**.

5. *BatEchoMon*

- India's first real-time bat echolocation monitoring system.
- Part of **IIHS Bengaluru's** Long-Term Urban Ecological project.
- Uses **AudioMoth, Raspberry Pi**, solar power, CNN algorithm.
- Records and classifies bat calls nightly using spectrograms and audio analysis.

APRIL 16

1. *Plastic Ice VII*

- A hybrid form of water found in **icy celestial bodies** like Neptune and Europa.
- Molecules form a solid **cubic lattice** but rotate like a liquid.
- Behaves like a **deformable solid** (plasticity); named for its malleability.

2. *Sir Chettur Sankaran Nair*

- Early nationalist leader and legal expert from Kerala.
- Youngest **Congress President (1897)**; resigned from **Viceroy's Council** post-Jallianwala Bagh.
- Faced and exposed British bias in 1922 **defamation trial** against Michael O'Dwyer.

3. *Rare Earth Magnets*

- Made from elements like **Neodymium, Samarium, Dysprosium**.
- Crucial for **EVs, defense, drones, wind turbines**.
- **China dominates refining** (~80% share), causing supply risk.
- Includes **Scandium, Yttrium**, and 15 **Lanthanides**.

April 17

1. *Hampi (Karnataka)*

- Former capital of the Vijayanagara Empire, established in 1336 CE by Harihara I and Bukka Raya I.
- Located on the Tungabhadra River, once called Pampakshetra.
- Admired by foreign travellers; fell in 1565 after the Battle of Talikota.
- Rediscovered in 1799 by Colin Mackenzie; British later documented and photographed it.

- Major landmarks: Vitthala Temple, Virupaksha Temple, Lotus Mahal.
- UNESCO World Heritage Site since 1986.

2. Tuti Island (Sudan)

- Positioned at the junction of the Blue and White Nile in Khartoum.
- Known for agriculture and fishing, spans 8 km²; inhabited by the Mahas since the 15th century.
- Symbolic of sustainability but vulnerable due to climate change and civil conflict.
- The HEART Project works to preserve its heritage and indigenous knowledge.

3. Leptobranchium aryatium (New Frog Species)

- Discovered in Garbhanga Reserve Forest, Assam, near Deepor Beel (Ramsar site).
- Initially misidentified; confirmed via morphology, DNA, and acoustic studies.
- Features: orange-black eyes, patterned throat, calls at dusk.
- Named after Arya Vidyapeeth College for local scientific contributions.

4. Etalin Hydroelectric Project (Arunachal Pradesh)

- Proposed 3,097 MW project in Dibang Valley, among India's largest.
- Comprises two run-of-the-river dams on Dri and Tangon rivers.
- Located in a biodiversity hotspot, home to the Idu-Mishmi tribe.
- Jointly developed by Jindal Power (74%) and HPDCAPL (26%).

5. Thangjing Hill (Manipur)

- Located in Churachandpur district, sacred to the Meitei community.
- Part of the Thangjing range bordering Imphal Valley.
- Believed to be the abode of Thangching, a local deity; visited during April (Sajibu month).
- Represents the "right leg" of Manipur in Meitei cosmology.

6. India-Denmark Relations

- Diplomatic ties since 1949, based on democracy and peace.
- Upgraded to "Green Strategic Partnership" in 2020.
- Key mechanisms: Joint Commission Meeting (since 2008) and Foreign Office Consultations (since 1995).

7. International Diabetes Federation (IDF)

- Founded in 1950 in Amsterdam; includes 230+ national diabetes bodies across 165 countries.
- Advocates global diabetes care, prevention, and cure.

8. ASHAs (Accredited Social Health Activists)

- Grassroots health workers under NRHM (2005), linking rural communities to healthcare.
- Earn ₹6,000–₹10,000 per month via honorariums and incentives.
- Played a crucial role during COVID-19; honored with WHO Global Leaders Award (2022).

9. ONDC (Open Network for Digital Commerce)

- Government-backed platform akin to UPI for e-commerce.
- Promotes interoperability between sellers, buyers, and logistics providers.
- Enables small retailers to compete with large e-commerce firms.
- Supported by DPIIT, uses open-source tech and shared protocols.

10. Manufacturing Sector Snapshot

- Accounts for ~20% of India's GDP and key to "Viksit Bharat" vision.
- Female participation dropped to 18.9% (2022–23) from 20.9% (2015–16).
- Tamil Nadu employs 41% of women in formal manufacturing.
- Informal sector sees 43% female representation.
- Gender gap persists in Bihar, WB, Chhattisgarh, and Haryana (<6%).

18th-20th April

1. Tanzania

- Recorded its highest average annual temperature in 2024: 24.3°C (0.7°C above normal).
- Capital: Dodoma; located in East Africa.
- Major features: Lake Victoria, Tanganyika, Nyasa; Mt. Kilimanjaro (Africa's tallest); Ruvuma & Rufiji rivers.
- Climate: Tropical with seasonal rains and prolonged dry spells.

2. WAVES 2025 – Anti-Piracy Challenge

- Held in Mumbai (May 1–4, 2025), organized by Ministry of I&B.
- Aims to position India as a creative media innovation hub.
- Anti-piracy tech like watermarking featured under "Create in India Challenge."
- Supports India's \$30 billion creative economy (8% workforce).

3. Exercise DUSTLIK-VI (India–Uzbekistan)

- Bilateral military exercise focusing on counter-terror operations in semi-urban settings.
- First held in 2019; 2024 edition hosted in Termez, Uzbekistan.
- Emphasizes joint sub-conventional operations and coordination.

4. Type 5 Diabetes

- Affects undernourished youth in low- and middle-income nations.
- Caused by malnutrition-induced loss of insulin production (not resistance).
- Initially identified in Jamaica (1955); removed as a category in 1999 but cases persist.
- Characterized by low BMI, minimal fat, and poor nutrition.

5. Mount Lewotobi (Indonesia)

- Twin stratovolcano on Flores Island, part of Pacific Ring of Fire.
- Comprises Lewotobi Lakilaki (1584m) and Perempuan (1703m).
- Lakilaki is more active; both have lava domes.
- Iliwokar, a side cone, exists on Perempuan's eastern flank.

April 21

1. Pir Panjal Railway Tunnel (Banihal Tunnel)

- India's longest railway tunnel (11.2 km), part of USBRL project.
- Connects Quazigund to Banihal under Pir Panjal range (Lesser Himalayas).
- Range spans HP and J&K; key rivers: Beas, Ravi, Chenab, Jhelum.
- Important passes: Pir Panjal Pass, Banihal Pass (Jawahar Tunnel: 2.5 km).

2. Enzymes and Coenzymes

- Enzymes need cofactors; coenzymes are organic helpers.
- Coenzyme Q (CoQ) vital for mitochondrial function.
- CoQ9 prevalent in cereals and bamboo; CoQ10 essential for heart and aging.
- Supports electron transport chain in energy-intensive tissues.

3. K2-18b (Exoplanet)

- Located 124 light-years away in Leo; discovered in 2015.
- 5.2x Earth's radius, 9x mass, with hydrogen-rich atmosphere.
- Hubble detected water (2019); JWST found CO₂ and methane.
- DMS/DMDS (potential biomarkers) possibly found—mainly produced by phytoplankton on Earth.

4. Lower Subansiri Hydroelectric Project (LSHP)

- 2,000 MW run-of-river project on Subansiri River (Arunachal-Assam border).
- Built by NHPC; dam is 116 m high (from riverbed) and 284 m long.
- Uses 8 Francis turbines (250 MW each); reservoir capacity: 1.37 km³.

5. Davis Strait Proto-Microcontinent

- Submerged landmass between Greenland and Baffin Island.
- Formed via strike-slip tectonics along Ungava Fault (45–62 million years ago).

- Continental crust here is 19–24 km thick; part of the Northwest Passage.

April 22

1. Exercise Desert Flag

- Major multinational air exercise with combat simulations.
- India deployed MiG-29 and Jaguar aircraft.
- Participants: Australia, France, Germany, USA, UAE, UK, South Korea, and others.
- Focus: Tactical coordination, air combat strategies.

2. CROP (ISRO Initiative)

- Semi-automated crop monitoring framework by NRSC.
- Tracks crop progress using EOS-04 (SAR), EOS-06, and Resourcesat-2A.
- Focus on Rabi season in major wheat-producing states (UP, MP, Punjab, etc.).
- Integrates SAR and optical data for better accuracy.

3. Hepatitis A

- Highly infectious liver disease via HAV.
- Spread through contaminated food/water or person-to-person.
- Self-limiting illness; no specific cure, but preventable via vaccination.

4. Sapsan (Hrim-2) Missile – Ukraine

- Tactical ballistic missile with 50–700 km range (depending on version).
- Combines ballistic and rocket system features; 10-wheeled TEL platform.
- Can evade Russian air defense using aero-ballistics.
- Warhead: 480 kg (unitary/cluster); guided by radar, inertial, and optical systems.

5. Earth Day (April 22)

- 2025 theme: “OUR POWER, OUR PLANET” – calls for tripling renewable energy by 2030.
- First held in 1970 (USA); became global in 1990.
- Promotes climate action and environmental sustainability.

6. Yellow Sea

- Marginal sea of the Pacific, bordered by China and the Koreas.
- Named for yellow silt from Gobi Desert; area ~400,000 km².
- Shallow sea (55–120 m deep), rich in biodiversity and fisheries.
- Lies north of the East China Sea.

APRIL 25

1. Factors Affecting Gold Prices



- **Demand and Supply:** Gold prices fluctuate based on its availability and market demand—for both investment and industrial use. A rise in mining output can depress prices, whereas heightened demand pushes them up.
- **Inflation Hedge:** Gold acts as a safeguard against inflation. Rising inflation drives investors toward gold to retain purchasing power.
- **Interest Rates:** Lower interest rates enhance gold's appeal as they reduce the cost of holding non-yielding assets. Higher rates make gold less attractive.
- **Geopolitical Tensions:** Political unrest or conflicts raise gold's demand as a safe-haven asset.
- **Currency Fluctuations:** Since gold is priced in USD, a weaker dollar makes it cheaper in other currencies, increasing global demand.

2. Liquefied Petroleum Gas (LPG)

- **Composition:** Mainly composed of propane (C_3H_8) and butane (C_4H_{10}).
- **Properties:** A colorless, odorless, and flammable liquid fuel.
- **Uses:** Commonly used in power generation, storage, transportation, and various industrial applications.

3. Perovskite Solar Cells (PSCs)

- PSCs are advanced solar cells using perovskite-structured compounds, known for high efficiency and low production cost.
- Challenges include environmental concerns due to lead content and recycling processes that use harmful solvents like dimethylformamide (DMF).

4. Taj Mahal

- Located in Agra, on the banks of the Yamuna River, it is an ivory-white marble mausoleum built by Mughal emperor Shah Jahan in 1632 in memory of Mumtaz Mahal.
- It represents Mughal architecture and has been a UNESCO World Heritage Site since 1983.

5. Arsenic (As)

- A naturally occurring toxic element, often found in minerals combined with sulfur and metals.
- **Health Impact:** Long-term exposure causes cancer, skin disorders, cardiovascular diseases, and developmental issues. In Taiwan, chronic exposure is linked to Blackfoot disease—a condition leading to gangrene.

6. Dark Matter and Dark Energy

- **Dark Matter:** An invisible substance accounting for ~27% of the universe, crucial for galaxy formation and structure. It interacts only via gravity.
- **Dark Energy:** Makes up ~68% of the universe and is linked to its accelerated expansion. Detected through measurements like the Hubble law.

7. Heat Waves

- **Definition:** Prolonged periods of excessive heat.
- **Criteria:**
 - Plains: $\geq 40^{\circ}\text{C}$; Hills: $\geq 30^{\circ}\text{C}$
 - Based on deviation: $+4.5^{\circ}\text{C}$ to $+6.4^{\circ}\text{C}$ (Heat Wave); $> +6.4^{\circ}\text{C}$ (Severe)
 - Based on absolute temp: $\geq 45^{\circ}\text{C}$ (Heat Wave); $\geq 47^{\circ}\text{C}$ (Severe); applies only if max temperature $\geq 37^{\circ}\text{C}$.
- **Affected Regions:** Central, Northern, and Peninsular India (March–June).

8. Indus Waters Treaty

- Signed in 1960 between India and Pakistan, mediated by the World Bank.
- Pakistan was allotted the western rivers (Indus, Jhelum, Chenab), while India retained the eastern ones (Ravi, Beas, Sutlej).
- India can use western rivers for non-consumptive purposes. A Permanent Indus Commission monitors compliance.

9. National Commission for Allied and Healthcare Professions (NCAHP)

- Formed under the NCAHP Act, 2021, this statutory body regulates education and practice standards for allied health workers like physiotherapists, technologists, etc.
- Responsible for training, licensing, quality assurance, and policy advisory.

10. Lipids

- Non-polar biological molecules found in cells and blood.
- Functions: Energy storage, cell structure, hormone production, vitamin absorption.
- Types include triglycerides, phospholipids, cholesterol, steroid hormones, etc.
- Excess lipids can lead to conditions like hyperlipidemia and heart disease.

APRIL 29

1. 'Bone Collector' Caterpillar

- A rare carnivorous caterpillar from Oahu, Hawaii, which decorates its protective silk case with body parts of its prey.
- Lives in a vulnerable forest area and feeds on trapped insects. Its lineage predates the formation of the Hawaiian Islands.

2. Bonds and Indian Bond Market

- Bonds are low-risk, fixed-income instruments. Prices and yields move inversely.
- Inflation and currency depreciation impact bond attractiveness.
- **Primary Market:** Includes new issues like government securities, municipal, PSU, green, and Masala bonds.
- **Secondary Market:** Involves trading existing instruments like T-Bills, Commercial Papers (CPs), and Certificates of Deposit (CDs).

3. Critical Tiger Habitat (CTH)

- Designated under the Wildlife Protection Act, 1972, based on scientific data to ensure safe zones for tiger conservation without violating tribal rights.
- State governments notify CTHs with expert consultation; buffer zones surround core habitats.

4. Central Empowered Committee (CEC)

- Created in 2002 by the Supreme Court to ensure environmental compliance; made permanent under the MoEFCC in 2023.
- Composition: Chairperson, Member Secretary, and three experts; NGOs now excluded.

5. Medium Range Surface to Air Missile (MR-SAM)

- Developed by DRDO and Israel Aerospace Industries; produced by Bharat Dynamics Limited.
- High-speed (Mach 2), 70 km range, targets multiple aerial threats.
- Equipped with phased array radar, dual-pulse propulsion, and thrust vector control.

6. Cucumber Mosaic Virus (CMV)

- Affects over 1,200 plant species including cucumbers, bananas, and melons.
- Transmitted by sap-sucking aphids, causing yield losses up to 70%.
- Symptoms: Stunted growth, discoloration, poor fruit quality. Managed through cultural practices and agrochemicals.

7. Indian Cybercrime Coordination Centre (I4C)

- Set up by the Ministry of Home Affairs to coordinate efforts against cybercrime.
- Key units include: National Cybercrime Reporting Portal, Threat Analytics, Training Centre, and Forensic Lab.
- Focuses on capacity building, awareness, cyber law, and global cooperation.

APRIL 30

1. Padma Awards

- Instituted in 1954 (current names since 1955): Padma Vibhushan, Padma Bhushan, Padma Shri.
- Honor exemplary service across fields. Open to all, barring most government officials.
- 120 awards per year, excluding posthumous and foreign recipients. They carry no title or privileges.

2. Investor Education and Protection Fund Authority (IEPFA)

- Formed in 2016 under the Companies Act, 2013 to manage unclaimed investor funds.
- Collaborated with SEBI for the 'Niveshak Shivar' initiative to help reclaim unclaimed dividends and update KYC details through camps and a QR code-based pre-registration system.

3. Central Consumer Protection Authority (CCPA)

- Established under the Consumer Protection Act, 2019.
- Ensures consumer rights, curbs unfair practices, and punishes false advertising.
- Has powers for class-action suits and investigations. Comprises Chief Commissioner and two members.

4. GAVI, the Vaccine Alliance

- Launched in 2000 as a global initiative for equitable vaccine access.
- Partners include WHO, UNICEF, World Bank, and private donors.
- Key role in COVAX during COVID-19; vaccinated over 1.1 billion children, saving nearly 19 million lives.

5. Uturuncu Volcano

- Located in Bolivia's Andes, it is a dormant stratovolcano standing 6,008 meters high.

- Sits atop the Altiplano-Puna Magma Body. Despite no eruptions in 250,000 years, it shows signs of geological unrest—earning the label “zombie volcano.”

6. Sharia Courts

- Informal Islamic forums led by a Qazi, resolving personal matters like marriage and inheritance through Shariat interpretation.
- Their rulings are advisory and non-binding. Individuals can approach regular courts for legal redress.

7. SMILE Scheme

- Launched by the Ministry of Social Justice in 2022.
- Aims to rehabilitate individuals engaged in begging and empower transgender persons.
- Goal: Make key urban areas “begging-free” and rehabilitate 8,000 individuals by 2025–26.

8. Geotagging

- Embedding geographical data into media (e.g., photos) to help identify and organize content by location.
- Useful in agriculture, disaster management, and urban planning.

9. Marine Protected Areas (MPAs)

- Ocean zones designated for long-term marine biodiversity conservation.
- Managed by governments, NGOs, or communities.
- Around 16,000 MPAs exist globally, covering 8% of oceans; only 3% are fully protected.
- **Target:** Conserve 30% of oceans by 2030 under the Kunming-Montreal Global Biodiversity Framework.

10. Similipal

- A biodiversity-rich forest area in Odisha’s Mayurbhanj district.
- Hosts 40 tigers, a quarter of Odisha’s elephants, 360 bird species, and 104 orchids.
- Its tigers are often pseudo-melanistic (dark-coated) due to a specific gene mutation.