ForumIAS

9 PM Current Affairs Weekly Compilation

For UPSC CSE mains examination

3rd Week

August. 2026

Features :

Arranged as per syllabus Topics
Most complete coverage of major News Papers editorials

INDEX

Nuclear energy's import dilemma

Source: The post "**Nuclear energy's import dilemma"** has been created based on **"Nuclear energy's import dilemma"** published in "**Business Line**" on 17th July 2026.

UPSC Syllabus: GS-2- Governance

Context: India has around **8.8 GW of installed nuclear capacity**, supplying about 3% of its electricity. The government aims to increase nuclear capacity to **100 GW by 2047** to reduce dependence on coal and support the net-zero target of 2070.

Challenges of Uranium Dependence

1. Achieving 100 GW of nuclear capacity would require around **18,000–20,000 tonnes of uranium annually**.
2. Global uranium production was about **62,000 tonnes in 2025**, meaning India could consume nearly one-third of current global production at the 100 GW level.
3. Although India has about **4.42 lakh tonnes of uranium reserves**, most deposits are low-grade and expensive to extract and refine compared with imports.
4. Past uranium shortages reduced the **Plant Load Factor (PLF)** of Indian nuclear plants, which fell below 60% and reached around 34–40% in early 2009.
5. India's uranium imports are relatively concentrated, particularly from **Kazakhstan, Uzbekistan and Canada**, creating supply and geopolitical risks.
6. Kazakhstan produces over **40% of global uranium output** and holds around 14% of global uranium resources, making excessive dependence on it a strategic vulnerability.
7. Thus, uranium dependence could replace dependence on imported fossil fuels with dependence on imported nuclear fuel.

Thorium as a Long-Term Solution

1. India possesses around **25% of the world's thorium reserves**, making thorium important for long-term energy self-reliance.
2. Thorium is not naturally fissile and must be converted into **U-233** through a reactor-based fuel cycle.
3. India's **three-stage nuclear programme** aims to exploit this potential through fast breeder reactors.
4. The **500 MW Prototype Fast Breeder Reactor (PFBR) at Kalpakkam achieved first criticality in April 2026**, marking an important milestone.
5. However, large-scale thorium utilisation remains constrained by the pace of building fast breeder reactors and achieving commercial maturity.

Way Forward

1. India should create a **strategic uranium reserve** to protect nuclear power generation from supply disruptions.
2. It should secure **binding long-term uranium supply agreements** with multiple countries to diversify sources.
3. India should acquire **equity stakes in overseas uranium mines** to gain greater control over supplies.
4. Funding for the **fast-breeder and thorium programmes** should be protected so that short-term nuclear expansion does not undermine long-term fuel independence.

5. India should strengthen R&D for **cheaper alternatives to lithium-ion batteries** and economical cellulosic ethanol to diversify its clean-energy options.
6. Nuclear energy should be integrated with solar, wind, hydro and other clean sources to create a diversified energy mix.

Conclusion: Nuclear power can play a crucial role in India's **energy security, clean-energy transition and Viksit Bharat 2047** goals. However, until the thorium-based fuel cycle becomes commercially viable, **uranium security must receive strategic importance comparable to crude-oil security**. A carefully sequenced transition can reduce both fossil-fuel dependence and long-term nuclear-fuel vulnerability.

Question: India's expansion of nuclear power is essential for achieving its energy security and net-zero goals, but it may also create dependence on imported uranium. Discuss the challenges and suggest a way forward.

Source: Business Line

India's quiet container transformation

Source: The post "**India's quiet container transformation**" has been created based on **"India's quiet container transformation"** published in "**Business Line**" on 17th July 2026.

UPSC Syllabus: GS-2- Governance

Context: India's first internationally compliant containers manufactured domestically, followed by a repeat order of nearly 1,000 containers from Maersk, marks an important step towards reducing dependence on imports and strengthening India's logistics ecosystem.

Significance of Container Manufacturing

1. Standardised containers have **reduced logistics costs, cargo losses and handling time** and enabled seamless movement across ships, railways and trucks.
2. Containers are essential for **global value chains (GVCs)** and India's growing trade through FTAs and improved multimodal connectivity.
3. The COVID-19 pandemic exposed the strategic importance of containers when shortages caused **higher freight rates and supply-chain disruptions**.
4. China produces **over 90% of global containers**, creating risks from excessive geographical concentration.
5. Domestic production can develop an ecosystem covering **Corten steel, fittings, flooring, coatings, locking systems, testing and certification**.

Challenges

1. Indian containers currently have a **cost disadvantage** compared with Chinese containers due to differences in scale, automation, supplier networks and financing.
2. Manufacturing alone is insufficient without **leasing, financing, insurance, repair, maintenance, refurbishment and recycling** facilities.
3. India needs greater demand from **shipping lines, exporters, railways, ICDs, CFSs and logistics parks** to achieve economies of scale.

4. Specialised containers such as **reefers, tank containers, high-cube, collapsible and smart containers** also need to be developed.

Way Forward: Creating a 'Container Economy'

1. India should increase **merchandise exports, containerised imports and transshipment volumes** to generate sustained container demand.
2. Dedicated manufacturing clusters should be developed near **ports, dry ports, industrial corridors and Dedicated Freight Corridors**, integrating component suppliers and testing facilities.
3. A competitive **container finance ecosystem** should be developed through leasing companies, insurance providers, maritime banks and investment funds.
4. **GIFT City** can become a hub for container leasing, structured finance and maritime insurance.
5. India should establish a complete **container lifecycle ecosystem** covering repair, refurbishment, remanufacturing, recycling and digital asset management.
6. Major ports such as **Vizhinjam, Mundra and JNPT**, along with the proposed **Nicobar transshipment hub**, can support container inspection, maintenance and repositioning.
7. India should promote **smart containers, reefers, tank containers and IoT-enabled tracking** to compete through technology and specialisation.
8. FTAs, the **China-plus-one strategy and trusted geopolitical partnerships** should be used to integrate Indian containers into global shipping and leasing networks.

Conclusion: India's first domestically manufactured container is only the beginning. The real opportunity lies in creating a **globally competitive container economy** that can manufacture, finance, lease, track, repair, reuse and export containers, thereby strengthening **trade competitiveness, maritime resilience and the Vision 2047 goal of becoming a global logistics and manufacturing hub**.

Question: India's entry into international-standard container manufacturing can strengthen its logistics and trade competitiveness. Discuss the opportunities and challenges in developing a complete 'container economy' in India.

Source: Business Line

AI in Healthcare

UPSC Syllabus: Gs Paper 3- Science and technology

Introduction

Modern healthcare has vast medical knowledge, but shortages of clinicians, uneven specialist distribution and rising disease burdens limit its reach. **Artificial Intelligence (AI)** can extend medical expertise through faster analysis, better decision-making and automated tasks. Its growing use is shifting healthcare towards routine adoption across **diagnosis, treatment and hospital operations**, while raising concerns about **reliability, accountability, privacy and equitable access**.

Growing Role of AI in Healthcare

1. **Shift from experimentation to routine use:** AI is moving from innovation teams into **consultations, diagnostics and hospital operations**, making dependable everyday use an important priority.

2. **Expansion of AI-enabled medical devices:** In **January 2025, the U.S. Food and Drug Administration (FDA)** reported more than **1,000 authorised AI-enabled medical devices**, including tools for radiology and cardiology.

3. **Growing adoption among healthcare professionals:** An American Medical Association survey released in 2025found that 66% of physicians used AI in their practice in 2024, up from 38% in 2023.

4. **Rise of advanced AI technologies:** Healthcare has moved from rule-based expert systems towards **Machine Learning, Deep Learning, Natural Language Processing and Generative AI** for increasingly complex tasks.

5. **Rapid market growth:** The global healthcare AI market was valued at **$11 billion in 2021** and is projected to approach **$187 billion by 2030**, indicating accelerating adoption.

Applications of AI in Healthcare

1. **AI in diagnosis and medical imaging:** AI can rapidly analyse **X-rays, magnetic resonance imaging and other scans**, supporting the detection of cancers, heart conditions and other diseases.

2. **Rare-disease detection:** Facial-analysis tools can flag possible **genetic disorders** that may otherwise remain undiagnosed for years because clinicians rarely encounter such conditions.

3. **Predictive and preventive healthcare:** AI analyses medical histories and current health information to identify potential risks, allowing healthcare teams to act before serious complications develop.

4. **Personalised and precision medicine:** Machine Learning identifies patient-specific patterns and can support treatment choices, helping doctors move towards **more individualised care**.

5. **Natural Language Processing in healthcare:** NLP can extract diagnoses, treatments and other useful information from **unstructured clinical notes**, improving the handling of complex medical records.

6. **Clinical decision support:** Rule-based and algorithmic systems can assist clinicians with diagnosis and treatment decisions, extending the use of AI beyond simple data analysis.

7. **Drug discovery and clinical research:** AI can examine large biological datasets and identify promising compounds, helping researchers narrow potential drug candidates more quickly than traditional approaches.

8. **Administrative automation:** AI can automate **data entry, appointment scheduling, claims processing and documentation**, reducing routine manual work within healthcare organisations.

Economic and Healthcare Benefits

1. **Better utilisation of existing capacity:** AI can prioritise radiology scans, identify deteriorating patients and support complex cases, allowing existing clinical resources to manage rising workloads.

2. **Reduction in healthcare costs:** A **January 2026 McKinsey analysis** estimated that AI could reduce healthcare revenue-cycle **cost-to-collect by 30% to 60%**.

3. **Reduced clinician workload:** Automating documentation and repetitive activities can reduce **staff fatigue** and allow healthcare professionals to devote more time to patient-related responsibilities.

4. **Creation of scalable healthcare services:** Remote monitoring, virtual specialist support and community-level diagnostics can make services available at a scale that was previously difficult to achieve.

5. **Continuous management of chronic diseases:** AI-supported monitoring can extend care beyond hospital discharge and support patients managing **diabetes, cardiac disease and cancer** over longer periods.

6. **Reduced preventable deterioration:** Remote monitoring and risk-based programmes can help care teams identify patients requiring attention, potentially reducing avoidable complications and hospitalisation.

AI and Healthcare Transformation in India

1. **Addressing specialist concentration:** Specialist care remains concentrated in larger cities, creating an opportunity for AI to extend medical expertise towards **smaller hospitals and communities**.

2. **Managing rising healthcare demand:** Indian hospitals are handling increasing patient volumes while clinical capacity cannot always expand at the same pace, strengthening the need for efficient technology.

3. **Expansion of digital health infrastructure:** By **May 2026, more than 100 crore health records** had been linked to **Ayushman Bharat Health Accounts**, twice the February 2025 figure.

4. **Improving hospital processes: Ayushman Bharat Digital Mission (ABDM) Scan and Share** reduced outpatient registration waits at participating hospitals from about **one hour to two-to-five minutes**.

5. **AI-based screening and diagnostics:** Telangana is piloting AI-based screening for **oral, breast and cervical cancers**, partly to address radiologist shortages and improve early detection.

6. **Strengthening human capital:** Better health, longevity and productivity can strengthen India's human capital, making healthcare an important part of **long-term economic development**.

Emerging Frontiers of AI in Healthcare and Medical Science

1. **From chatbots to agentic AI:** AI is progressing from basic chatbots towards **agentic systems** capable of performing tasks and managing increasingly complex activities with greater autonomy.

2. **Advanced medical reasoning:** More capable AI systems can analyse complex diagnostic problems rapidly, showing potential to support tasks traditionally dependent on highly specialised medical expertise.

3. **AI-led drug design:** Emerging systems can generate molecules and explore vast molecular spaces, expanding the possibilities available to researchers during drug development.

4. **AI in synthetic biology and scientific discovery:** AI is helping design **gene circuits, predict biological properties and model complex systems**, allowing researchers to investigate problems beyond conventional approaches.

5. **Embodied intelligence and human-AI collaboration:** Robots, multisensory systems and human-AI teams are extending healthcare AI into physical and interactive settings, while combining machine capabilities with human judgement.

Challenges of AI in Healthcare

1. **Clinical reliability and real-world validation:** Strong performance at launch does not guarantee continued accuracy, making **continuous real-world evaluation** necessary for safe clinical use.

2. **Bias and lack of representative data:** Differences across populations, diseases and healthcare settings can affect AI performance and create risks of **biased or unequal outcomes**.

3. **Privacy and data governance:** Growing use of digital medical information requires strong safeguards for **privacy, security and responsible management of health data**.

4. **Integration with existing healthcare systems:** Standalone AI tools can be difficult to connect with **Electronic Health Records (EHRs)** and established clinical workflows.

5. **Patient and clinician trust:** Patients and doctors may remain cautious about AI-assisted care, while **transparency and clear explanations** can improve acceptance.

6. **Liability and accountability:** Greater AI involvement in clinical decisions raises questions about responsibility when an AI-supported recommendation causes harm to a patient.

7. **Regulatory and adoption barriers:** Healthcare organisations must address regulation, staff training, clinician acceptance, financial viability and real-world validation before AI can be adopted widely.

Way Forward

1. **Use AI selectively:** Healthcare should adopt AI where it can reduce delays, improve decisions or expand appropriate care rather than using technology everywhere.
2. **Maintain human oversight:** Doctors and healthcare teams should retain appropriate control over important clinical decisions, particularly where **AI errors can directly affect patient safety**.
3. **Strengthen clinical validation:** AI systems should undergo rigorous testing in real-world settings because initial performance alone cannot establish long-term reliability.
4. **Improve data quality:** Representative and reliable datasets are essential to reduce bias and ensure that AI performs across different populations and healthcare settings.
5. **Build interoperable systems:** AI should integrate with existing digital health platforms and EHRs instead of remaining isolated within individual applications.
6. **Create clear accountability:** Regulations should clearly address privacy, transparency, liability, bias and responsibility while allowing useful healthcare innovation to develop.
7. **Ensure inclusive adoption:** India should extend AI-supported healthcare towards rural and underserved communities so technological progress does not remain concentrated in larger health systems.

Conclusion

AI can extend medical expertise, improve healthcare efficiency and support earlier intervention, but technology alone cannot solve healthcare gaps. **India needs responsible, evidence-based and inclusive AI** that works with human expertise. Its success should be judged by **better patient outcomes, wider access, improved health, longevity and human well-being**, rather than by the number of AI systems deployed.

Question for practice:

Examine the role of Artificial Intelligence in transforming healthcare, particularly in improving accessibility, efficiency and patient outcomes.
Source: The Hindu

The Federal Dilemma of Delimitation

UPSC Syllabus: Gs Paper 2- issues and challenges pertaining to the federal structure.
Introduction

Delimitation is not merely a process of redrawing constituencies; it can reshape India's democratic representation and federal balance. The central challenge is to reconcile fair representation based on population with the political interests of States that controlled population growth. The debate also concerns the size of the Lok Sabha, women's reservation, the role of the Rajya Sabha, and the need for a durable constitutional framework that protects both democratic equality and cooperative federalism.

Understanding Delimitation and the Constitutional Framework

1. **Meaning and purpose:** Delimitation fixes the number of seats and boundaries of territorial constituencies for the Lok Sabha and State Assemblies through a Delimitation Commission created by Parliament.

2. **Principle of equal representation:** Article 81(2) seeks a broadly similar population-to-seat ratio across States, reflecting the democratic principle of **one person, one vote, one value**.

3. **1971 population basis:** The Lok Sabha's 543 seats (maximum of 550 seats) were fixed using the 1971 Census, when India's population was **54.8 crore**, giving roughly **10.1 lakh people per constituency**.

4. **Population-control incentive:** The seat freeze was intended to ensure that States pursuing population control did not lose parliamentary representation because their populations grew more slowly.

5. **Constitutional freeze:** The **42nd Constitutional Amendment** froze State-wise seat allocation, while the **84th Amendment** extended the freeze until the first Census after 2026.

6. **Women's reservation:** The **106th Constitutional Amendment, 2023** provided one-third reservation for women in the Lok Sabha and State Assemblies, linked to delimitation based on the Census after 2026.

Why Has Delimitation Become a Federal Dilemma?

1. **Uneven population growth:** Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan experienced greater population growth, while Kerala, Tamil Nadu, Karnataka and Andhra Pradesh recorded comparatively slower growth.

2. **Representation gap:** Existing seat distribution no longer fully reflects projected population differences, creating a democratic concern because citizens in populous States may have fewer MPs relative to their population.

3. **Federal disadvantage:** Reallocation based mainly on present population could increase the political weight of large northern States while relatively disadvantaging southern, smaller northern and northeastern States.

4. **Cost of policy success:** States that achieved better population control may lose political significance despite following a national policy encouraged by the Union for decades.

5. **Trust between Union and States:** The debate is therefore about more than regional rivalry; it concerns whether States can trust national policies without fearing a later loss of political influence.

Democratic Equality vs Federal Fairness

1. **Democratic claim:** Fast-growing States have a legitimate demand for representation that reflects their larger populations, making periodic adjustment difficult to avoid permanently.

2. **Federal claim:** India is also a Union of States, so political representation must protect the meaningful participation and voice of constituent States. This is important because parliamentary strength influences national decision-making beyond constituency-level representation.

3. **Basic Structure:** Federalism is part of the Constitution's **Basic Structure**, making the federal balance an important constitutional consideration during delimitation.

4. **Population is not the only factor:** The central question is whether population alone should determine political power when States have different demographic histories and policy outcomes.

5. **Relative political weight:** Seat share affects government formation, legislative priorities, coalition arithmetic and political attention, making relative representation more important than simply increasing absolute seats.

6. **Cooperative federalism:** States must trust that achieving national objectives will not later become a reason for losing their political voice within the Union.

Arguments in Favour of Increasing Lok Sabha Seats

1. **Accommodating population growth:** Increasing the House can provide additional representation to growing populations without removing the existing seats of other States.

2. **Pro-rata expansion:** Increasing seats proportionately can preserve existing State shares while giving growing populations additional representation without directly taking seats away from other States.

3. **Women's reservation:** An enlarged House could make one-third women's reservation easier, with about **272 additional seats for women** in a House of around **816 members**.

4. **2026 legislative proposal:** The Constitution (131st Amendment) Bill, 2026, proposed raising the Lok Sabha's constitutional maximum from **550 to 850**, but it was **negatived by the Lok Sabha**, so the proposed expansion did not take effect.
5. **Political accommodation:** Expansion can offer a numerical compromise by giving growing populations more representation while avoiding an immediate reduction in other States' existing seats.

6. **Avoiding direct displacement:** Adding seats rather than reallocating existing ones can reduce immediate political resistance because current State-wise representation would not be directly taken away.

Concerns and Challenges of a Larger Lok Sabha

1. **Rajya Sabha imbalance:** Increasing Lok Sabha seats by 50% without changing the Rajya Sabha could shift the present **2.2:1 ratio to about 3.3:1**, weakening the balance between the two Houses.

2. **Weaker federal check:** A stronger numerical advantage for the Lok Sabha could reduce the Rajya Sabha's effectiveness as a check on legislation and federal interests.

3. **Joint sitting risk:** Joint sittings have been used only **three times since Independence**, but a larger Lok Sabha could increase their political importance during disagreements between the Houses.

4. **Less deliberation:** With Parliament sitting for only around **60 days a year**, a much larger House could leave MPs with less meaningful time to raise issues and debate legislation.

5. **Higher public cost:** More MPs would increase expenditure on parliamentary functioning and schemes such as the **Members of Parliament Local Area Development Scheme (MPLADS)**.

6. **Share remains central:** Proportional expansion may preserve current percentages initially, but it does not resolve future disputes if population remains the sole basis for representation.

7. **Permanent imbalance risk:** Repeated population-based exercises could gradually create winners and losers, making a larger House only a temporary accommodation.

Lessons from Other Federations

1. **United States model:** The United States combines a population-based House of Representatives with a Senate giving every State equal representation, creating a direct federal counterweight.

2. **German model:** Germany's Bundesrat gives State governments a direct role in federal legislation, strengthening the participation of constituent units.

3. **Other federal safeguards:** Australia, Canada and Switzerland also use institutional arrangements that balance democratic representation with protection of federal interests.

4. **India's structural gap:** India's Rajya Sabha is the Council of States, but its representation is also broadly population-linked, so no chamber gives every State equal standing.

5. **Need for balance:** The comparison shows that democratic equality can coexist with federal fairness when institutions provide safeguards against excessive concentration of political power.

Way Forward

1. **Tamil Nadu proposal:** Tamil Nadu seeks to retain **543 Lok Sabha seats**, preserve the existing State-wise distribution, maintain the **2.2:1 Lok Sabha–Rajya Sabha ratio**, and implement women's reservation from 2029 without linking it to future delimitation.

2. **State-level adjustment:** The democratic representation gap can instead be addressed by increasing the number of MLAs in States according to their current populations.

3. **Balanced representation formula:** India can examine a model that considers both population and successful implementation of national population-control policies.

4. **Representation safeguard:** A constitutional guarantee could ensure that no State's relative parliamentary share falls below an agreed minimum level.

5. **Stronger federal role:** The Rajya Sabha can be given a stronger role in protecting State interests during major changes in parliamentary representation.

6. **National consultation:** The Union should consult State governments, Parliament, constitutional experts, former judges, the Election Commission, the Delimitation Commission and civil society. Such consultation can help convert competing regional concerns into a broadly accepted constitutional framework.

7. **Durable consensus:** The final framework should protect citizens' demand for fair representation while preserving States' confidence in India's cooperative federal system.

Conclusion

India cannot resolve delimitation through population arithmetic alone. Democratic equality requires fair representation for growing populations, while federal fairness protects States that pursued population stabilisation. A durable solution should combine population-based representation with federal safeguards, effective parliamentary functioning and broad consultation. This will strengthen democratic accountability while preserving the constitutional balance between citizens, States and the Union.

Question for practice:

Evaluate the challenges of delimitation in balancing democratic representation with the federal interests of States in India.

Source: The Hindu

India produces too many engineers

Source: The post "**India produces too many engineers"** has been created based on "India produces too many engineers" published in "**Indian express**" on 18th August 2026.

UPSC Syllabus: GS-2- Governance

Context: India's engineering education expanded rapidly after 2000 due to the Y2K-driven demand for software professionals and the growth of the IT sector. While access to engineering education has increased substantially, the major challenge now is to ensure **quality, employability, and meaningful learning**.

Key Challenges

1. **Expansion without adequate quality:** Engineering capacity has expanded faster than the ability of many institutions to provide quality teaching, faculty, infrastructure, and industry exposure.
2. **Uneven institutional outcomes:** Premier IITs, NITs, IIITs, and some other institutions maintain strong academic and industry linkages, while many other institutions struggle with quality and student demand.
3. **Uneven demand across disciplines:** Students increasingly prefer computer science, AI, and data science, while traditional engineering branches face declining demand and vacant seats.
4. **Compliance over learning:** Regulatory requirements under bodies such as AICTE, NBA, and NAAC can become focused on documentation rather than demonstrating what students have actually learned.
5. **Rote learning:** Conventional lectures, examination-oriented teaching, and curriculum additions have often failed to develop practical problem-solving and application-based skills.
6. **Weak industry engagement:** Laboratories, projects, and industry interactions sometimes become procedural rather than providing students with meaningful practical experience.
7. **Faculty incentive issues:** Research publications and other measurable indicators may receive greater importance than teaching innovation, mentoring, and student engagement.
8. **Challenge of Generative AI:** AI can provide explanations, write and debug code, generate assignments, and support projects and research. Therefore, traditional assignments and examinations may no longer accurately measure students' individual understanding.
9. **Outdated pedagogy:** Technology has changed rapidly, but teaching methods have not changed at the same pace, creating a gap between technological advancement and classroom learning.

What Engineering Education Should Focus On

1. Education should shift from **information delivery to capability development**.
2. Assessment should focus on **reasoning, design, experimentation, problem-solving, and application of fundamentals** rather than mere recall.
3. Projects should require students to frame problems, make engineering choices, test alternatives, and defend their solutions instead of simply submitting AI-generated work.
4. Teachers should increasingly act as **mentors, problem-framers, and learning facilitators** rather than only information providers.
5. Students should develop skills that AI cannot easily replace, such as **sound judgement, originality, experimentation, validation, and responsibility for solutions**.

Way Forward

1. India should focus on **demonstrated learning rather than merely increasing seats, degrees, documentation, or accreditation scores**.
2. Continuous faculty development should be strengthened, with greater incentives for teaching and mentoring.
3. Industry should become a genuine partner through **live projects, internships, and curriculum inputs**.
4. AI should be integrated into education where it adds value while simultaneously strengthening reasoning, design, experimentation, and validation skills.
5. Institutions should be evaluated primarily on **student learning and outcomes**.

Conclusion: India has largely addressed the issue of **access to engineering education**; the next priority is to improve the **quality of learning**. The goal should be **"less compliance, more learning; fewer credentials, stronger engineers"**, especially as Generative AI transforms the skills required by the engineering profession.

Question: India has expanded engineering education significantly, but the quality of learning and employability of graduates remain major concerns. Discuss the key challenges facing engineering education in India in the era of Generative AI and suggest the way forward.

Source: Indian Express

Match AI Models to Workloads, Not Leaderboards

UPSC Syllabus: Gs Paper 3- Science and Technology

Introduction

AI adoption is moving beyond the race for the highest-ranked model. An AI model is a trained system used to process information and perform tasks. Enterprises now have deployment choices, and the right option depends on workload, data sensitivity, cost, governance, security and operational capacity. Open-weight models have widened these choices, while managed inference offers a middle path between closed APIs (Application Programming Interface) and self-hosted systems. Data contamination also raises questions about leaderboard scores.

Understanding the AI Model and Deployment Landscape

1. **What is an AI model:** An AI model is a trained system that uses learned weights to process information and perform specific tasks.
2. **From rankings to workload fit:** Model rankings remain useful for comparison, but the highest score alone no longer determines the best enterprise choice.
3. **Three deployment choices:** Enterprises can increasingly choose between **closed APIs, self-hosted open-weight models and managed open-weight inference platforms**.
4. **Closed model approach:** Closed models are delivered remotely through managed APIs, allowing enterprises to use powerful models without operating underlying infrastructure.
5. **Expanded decision factors:** Cost, governance, data residency, intellectual property protection and operational complexity now matter alongside model capability.

6. **Different organisational needs:** A bank, marketing team, manufacturer and cybersecurity team can have very different requirements from their AI systems.

Choosing the Right AI Deployment for Different Workloads

1. **Frontier reasoning tasks:** Customer-facing applications requiring strong reasoning often remain suitable for **closed AI APIs** from frontier model providers.
2. **Regulated workloads:** Workloads with strict data-residency requirements can benefit from **managed open-weight platforms hosted within the required country**.
3. **Security-sensitive workloads:** Security forensics and malware analysis often require **self-hosted models** because sensitive investigation data must remain within organisational infrastructure.
4. **IP-sensitive applications:** Self-hosted deployment can support fine-tuning on proprietary knowledge without routinely sending that information to an external provider.
5. **Workload classification:** Enterprises should classify workloads according to control requirements as carefully as performance requirements before selecting models.

Open-Weight Models: Benefits and Opportunities

1. **Direct model control:** Open-weight models allow organisations to run trained model weights themselves, subject to applicable licence conditions.
2. **Data residency:** Sensitive information can remain inside approved organisational environments instead of routinely moving to external model providers.
3. **Proprietary fine-tuning:** Enterprises can fine-tune open-weight models using proprietary knowledge while keeping that knowledge within controlled environments.
4. **Greater portability and lower vendor dependence:** Open-weight deployment can reduce dependence on a single vendor's roadmap and pricing while giving enterprises greater portability.
5. **Lower token costs:** Open-weight models can provide substantially lower per-token costs, although actual savings depend strongly on utilisation and scale.
6. **Strategic control:** Greater control can be valuable for large organisations with strong engineering capacity and workloads requiring specialised AI operations.

Challenges of Open-Weight AI Deployment

1. **Infrastructure requirement:** Running open-weight models reliably at enterprise scale requires **GPU infrastructure and inference-serving capabilities**.
2. **Operational burden:** Organisations must manage monitoring, security, governance, upgrades and other production requirements after deploying the model.

3. **Licensing remains an organisational responsibility:** Open-weight deployment does not remove licensing obligations, which remain part of the organisation's responsibilities.

4. **Total cost uncertainty:** Lower per-token costs do not automatically mean lower overall costs because ownership expenses depend heavily on utilisation and scale.

5. **Capability gap:** Large organisations with deep engineering teams may manage these requirements, while smaller enterprises can find them considerably harder.

6. **Control versus responsibility:** Open weights provide greater control, but that control also transfers more technical and operational responsibility to the enterprise.

Emerging Solution: Managed Open-Weight Inference

1. **Middle-path model:** Managed inference platforms combine open-weight model flexibility with the convenience of externally managed production infrastructure.

2. **Reduced infrastructure burden:** Enterprises can use open-weight models without building and operating their own GPU clusters and inference stacks.

3. **Production reliability:** Managed platforms address practical requirements such as **concurrency, latency, security and continuous model updates** at scale.

4. **Bridges the capability gap:** Managed inference can help companies wanting open-weight models but unable to justify specialised AI operations teams or self-hosting infrastructure.

5. **Data residency and token sovereignty:** India-hosted inference can give enterprises greater control over AI processing location while supporting Indian data-residency requirements.

6. **Indian example: Sarvam Inference** provides an India-hosted service using domestic infrastructure and serving Sarvam's 105-billion-parameter model alongside GLM 5.2 and Gemma 4.

7. **New vendor dependence:** Managed open-weight platforms reduce model-level dependence but can create dependence on provider infrastructure, pricing and service.

The Problem with AI Leaderboards: Data Contamination

1. **Contaminated benchmarks:** A model can achieve an unusually high benchmark score when evaluation data has already influenced its training.

2. **Memorisation versus generalisation:** A contaminated score may reflect recognition of familiar information rather than the ability to solve genuinely new problems.

3. **Real-world performance gap:** A model scoring **95% on a contaminated benchmark** may not perform equally well on unseen real-world tasks.

4. **Why contamination occurs:** Internet-scale training can unintentionally include benchmark material when papers, datasets or related content are publicly available.

5. **Intentional benchmark training:** Developers may deliberately train on benchmarks during final tuning because such training can improve practical performance.

6. **Perplexity analysis:** Unusually low perplexity shows benchmark text is highly predictable to the model and can indicate similar material appeared during training.

7. **Need for transparency:** Benchmark exposure is not automatically wrong, but developers should disclose it so users can interpret evaluation results correctly.

Way Forward

1. **Adopt workload-based selection:** Enterprises should choose models according to each workload's balance of **capability, control, cost and governance**, rather than corporate defaults.

2. **Maintain sensitive capabilities:** Organisations handling security forensics or malware analysis should have capable, vetted open-weight models already running on controlled infrastructure.

3. **Use transparent benchmarks:** Developers should disclose benchmark training or exposure so high scores are not interpreted as pure evidence of generalisation.

4. **Evaluate managed platforms:** Enterprises using managed open-weight inference should examine **portability, security, pricing and exit options** before committing.

5. **Treat deployment strategically:** AI deployment should be treated as a **core architectural decision**, because the right approach differs across workloads.

Conclusion

The future of enterprise AI is not about finding one universally "best" model. It is about selecting the best-fit combination of model and deployment for each workload. Closed APIs, managed open-weight platforms and self-hosted models each have distinct strengths. Enterprises should combine workload-based deployment with transparent evaluation while balancing capability, control, cost and governance across enterprise needs.

Question for practice:

Discuss why enterprises should match AI models and deployment approaches to specific workloads rather than relying solely on AI model leaderboards.
Solution: The Hindu

The road to E20 is not without bumps

UPSC Syllabus: Gs Paper 3- Indian economy and Infrastructure
Introduction

India's shift to E20 petrol, containing up to 20% ethanol, aims to reduce crude oil imports, save foreign exchange and cut carbon emissions. However, its rollout across the country has raised concerns over legacy vehicle compatibility, mileage, fuel-system damage, contamination risks and reduced consumer choice. The key

challenge is balancing national energy goals with vehicle safety, fuel quality and consumer protection during this transition for owners of two-wheelers and passenger cars across India.

E20 Transition and India's Vehicle Fleet

1. **E20 mandate:** The February 17, 2026 notification requires all States and Union Territories to sell petrol blended with up to 20% ethanol from April 1.

2. **Higher octane standard:** The new mandate requires E20 petrol to have a **minimum Research Octane Number (RON) of 95**, while increasing the permitted ethanol blending level from **10% to up to 20%**.

3. **Post-2023 compatibility:** Vehicles meeting Bharat Stage 6 Phase 2 Real Driving Emissions norms from April 2023 received ethanol-resistant components and recalibrated powertrain controls for higher blends.

4. **Legacy fleet limitation:** Vehicles manufactured before April 2023 were generally calibrated for E5 or E10 and used Nitrile Butadiene Rubber with conventional metal fuel components lacking higher-ethanol protection.

5. **Large compatibility gap:** India has roughly **310 million active petrol vehicles**; about **70 million** are certified for E20, leaving nearly **240 million legacy vehicles**, mostly two-wheelers.

Engineering Challenges for Legacy Vehicles

1. **Rust and residue removal:** Ethanol acts as a solvent and detergent, dislodging rust, oxidised scale and varnish from older steel tanks and carrying residues into fuel systems.

2. **Fuel-system blockage:** Released sludge can clog fuel filters and pump strainers, while abrasive particles may damage injector nozzles, causing irregular spray patterns and engine misfires.

3. **Moisture and phase separation:** Ethanol absorbs atmospheric moisture; when saturation occurs, the water-ethanol mixture separates and settles at the tank bottom, creating a corrosive layer against steel.

4. **Rubber component damage:** Pre-2023 **Nitrile Butadiene Rubber (NBR)** hoses, O-rings and pump diaphragms can absorb ethanol, causing swelling, hardening and embrittlement that may eventually result in fuel leaks.

5. **Mileage and efficiency loss:** Ethanol has about **30–35% less energy per unit volume** than petrol, so older engines may face lower efficiency, mileage penalties and soot deposits.

Fuel Quality and Supply-Chain Risks

1. **Underground tank exposure:** Retail outlets commonly use Underground Steel Tanks, where monsoon flooding, runoff and ageing manhole gaskets can allow water to enter storage systems during rainfall.

2. **Critical moisture threshold:** When water entering an E20 storage tank exceeds roughly **0.5%**, phase separation can occur across thousands of litres, damaging fuel quality and performance.

3. **Corrosive separated layer:** The separated water-ethanol layer becomes low-octane and highly corrosive, potentially reaching suction pumps and causing engine stalling and immediate fuel-system failure in vehicles.

4. **Chemical contamination:** Agrochemical residues and distillery reagents can introduce trace chlorides, which may form hydrochloric acid during combustion and corrode injectors and cylinder walls severely.

5. **Water during production and transit:** Faults in molecular-sieve dehydration units or poor tanker sealing can introduce excess water before ethanol reaches retail fuel stations, weakening fuel quality.

Impact on Consumers

1. **Reported mileage loss:** Consumer surveys found over **66% of pre-2023 vehicle owners** reporting mileage losses above 10%, showing significant dissatisfaction among legacy-vehicle users nationwide.

2. **Higher maintenance burden:** About **55%** of surveyed pre-2023 owners reported increased maintenance frequency and component wear, adding costs beyond the initial fuel transition for many users.

3. **Two-wheeler exposure:** Most of the estimated **240 million legacy vehicles are two-wheelers**, making older E5/E10-dependent fuel systems a major concern for everyday consumers and commuters.

4. **Loss of fuel choice:** Nationwide E20 sales reduce access to unblended E0 petrol, limiting the ability of legacy-vehicle owners to choose lower-ethanol fuel for older systems safely.

5. **Compatibility assessment gap:** The Ministry of Heavy Industries had not formally assessed what share of India's vehicle fleet is genuinely E20-compatible, leaving overall exposure uncertain.

The Scientific Debate over E20

1. **IIT Kanpur finding:** The Engine Research Laboratory at IIT Kanpur reported no notable damage from E20 and efficiency declines below 5%, linking mileage changes to conditions.

2. **Independent technical concerns:** Automotive experts, consumer communities and mechanics questioned complete E20 safety for E10-calibrated vehicles, especially because peripheral fuel components may fail before engine blocks.

3. **Fuel sample evidence:** Reuters-reviewed industry data covered more than **250 fuel samples across 21 States**, raising concerns about chemical contaminants found in some E20 supplies.

4. **Chloride and water readings:** Chloride reached **570 ppm in Rajasthan, 420 ppm in Delhi**; water reached **12,500 ppm in Uttar Pradesh, 13,000 ppm in Andhra Pradesh**.

5. **Industry and government responses:** The **Society of Indian Automobile Manufacturers (SIAM)** termed the leaked data preliminary and unvalidated, while the Petroleum Ministry called contamination reports localised anomalies.

Way Forward

1. **Consumer choice and labelling:** Retail outlets should provide **E0/E10 alongside E20** and clearly display ethanol content on dispensers, enabling legacy-vehicle owners to make informed fuel choices.

2. **Publish batch quality data:** Oil marketing companies should disclose regular batch-level moisture and chloride measurements to improve transparency and identify contamination before it reaches consumers or vehicles.

3. **Support affordable retrofits:** Regulators should encourage certified retrofit kits, including ethanol-resistant fuel lines and reinforced seals, particularly for older two-wheelers and other legacy vehicles needing protection.

4. **Issue maintenance guidance:** Standardised service guidelines should help owners reduce risks from phase separation and corrosion, while subsidised retrofit support can lower adaptation costs for users.

5. **Independent real-world testing:** A **transparent, multi-year study** should track pre-2023 vehicles across different regions and climates to assess mileage, component wear and E20 compatibility.

6. **Learning from Brazil:** India can learn from **Brazil's gradual blending, vehicle adaptation, stable policy and consumer flexibility** to make the E20 transition more transparent and manageable.

Conclusion

E20 can support India's energy and environmental goals, but its transition needs stronger safeguards for older vehicles and fuel quality. A consumer-centric approach should combine informed fuel choice, transparent quality monitoring, affordable retrofits and independent evidence. This can address genuine risks, reduce uncertainty and build public trust without weakening the broader objective of reducing petroleum dependence overall.

Question for practice:

Examine the challenges associated with India's transition to E20 fuel and suggest measures to ensure a safe and consumer-friendly transition.
Source: The Hindu

School Closures: Misfortune or a Step Towards Holistic Development?

Source: The post **"School Closures: Misfortune or a Step Towards Holistic Development?"** has been created based on **"School Closures: Misfortune or a Step Towards Holistic Development?** **"** published in **"The Hindu"** on 18th August 2026.

UPSC Syllabus: GS-2- Governance

Context: India's school education policy has traditionally aimed to ensure that every child has access to a neighbourhood school. However, declining enrolment, demographic changes and the large number of single-teacher schools have created a debate over whether schools should be consolidated or retained.

Importance of neighbourhood schools

1. Neighbourhood schools ensure easy access to education, particularly for poor, rural, tribal and disadvantaged children.
2. They reduce the distance children have to travel and improve their safety and participation in the local community.
3. They also facilitate welfare measures such as the Mid-Day Meal Scheme.

Problems with very small schools

1. Single-teacher schools often require one teacher to manage multiple classes, subjects and administrative responsibilities.
2. Such schools may struggle to provide subject-specific teaching, laboratories, sports, libraries and co-curricular activities.
3. Very low enrolment also limits opportunities for peer learning, group discussions and social interaction.
4. Therefore, the presence of a school nearby does not always guarantee a complete and holistic educational environment.

Changing school education landscape

1. The total number of schools in India declined from 15.16 lakh in 2014-15 to 14.71 lakh in 2024-25.
2. Government schools declined from 11.07 lakh to 10.13 lakh during the same period.
3. Total student enrolment declined from 26.95 crore to 24.69 crore.
4. Government-school enrolment declined from 13.62 crore in 2022-23 to 12.16 crore in 2024-25, while private-school enrolment increased from 8.42 crore to 9.59 crore.
5. Government schools with fewer than 10 or zero students increased from about 52,300 in 2022-23 to more than 65,000 in 2024-25.

Reasons for declining enrolment

1. India's declining fertility rate has reduced the number of school-age children entering the education system.
2. India's Total Fertility Rate has declined from more than three in the early 1990s to around two, which is below the replacement level of 2.1.
3. Rising female literacy, improved healthcare, wider access to family planning and delayed marriage have contributed to this demographic transition.
4. Urbanisation, migration and changing parental preferences have also changed the distribution of students across schools.
5. Therefore, declining enrolment does not necessarily indicate increasing dropout and is partly a consequence of demographic change.

Ways in which school consolidation can improve education

1. Consolidation can bring students from under-enrolled schools to better-equipped schools with more teachers and stronger infrastructure.
2. Larger schools can provide better opportunities for peer learning and social interaction.
3. Consolidated schools can make better use of teachers and resources by providing access to subject specialists, laboratories, libraries, sports and co-curricular activities.
4. The NEP 2020 promotes school complexes and clusters through which neighbouring schools can share teachers, laboratories, libraries, sports facilities and other resources.
5. The idea of the Gurukul also highlights that education should promote intellectual, social, physical, emotional and character development rather than only classroom learning.

Concerns associated with school closure

1. School closure can increase the distance children have to travel and may reduce access to education in remote areas.
2. Longer travel distances can particularly affect young children, girls, children with disabilities and children from tribal communities.
3. Closure may also weaken community participation in education.
4. Therefore, efficiency in the use of resources should not come at the cost of equity and accessibility.

Way Forward

1. School consolidation should be based on enrolment, geography, distance, local conditions and the availability of viable alternatives.
2. Governments should not close schools merely for administrative convenience or cost reduction.
3. Neighbourhood schools should be retained where they are essential for providing access to disadvantaged and remote communities.
4. Where consolidation is justified, governments should ensure adequate teachers, infrastructure and quality learning facilities in the receiving schools.
5. Children who have to travel beyond a reasonable walking distance should be provided with safe transport or travel assistance.
6. School complexes and clusters should be effectively used to share teachers and educational resources without unnecessarily closing schools.
7. The success of consolidation should be measured through learning outcomes, school retention, safety, inclusion and the overall quality of education, rather than simply by the number of schools closed.

Conclusion: India must balance access, equity and quality rather than choosing between neighbourhood schools and school consolidation. Demographic changes may make some rationalisation necessary, but it must be implemented carefully and sensitively. The ultimate objective should not be to have more schools or fewer schools, but better schools that provide every child with safe, inclusive and holistic education.

Source: The Hindu

On minerals and mines, strike a new federal balance

Source: The post "**On minerals and mines, strike a new federal balance"** has been created based on **"On minerals and mines, strike a new federal balance"** published in "**Indian Express**" on 19th August 2026.

UPSC Syllabus: GS-3- Economy

Context: The mining sector is vital for India's economic growth and infrastructure development. The Mines and Minerals (Development and Regulation) Amendment Bill, 2026 seeks to restrict states' powers to impose levies on mineral rights and mineral-bearing lands, with the objective of creating greater certainty and encouraging investment.

Key provisions and rationale

1. **Greater predictability:** The amendments aim to provide a more uniform and predictable taxation framework for the mining sector.
2. **Rationalisation of levies:** States currently impose several taxes, charges, fees and levies, including royalty and auction premiums, with rates varying across states. Rationalisation could reduce uncertainty for investors.
3. **Reducing the tax burden:** According to the FIMI-EY report, India's effective tax rate is above 50 per cent of revenues, compared with around 35–40 per cent in other countries. Rationalisation could therefore improve India's investment attractiveness.
4. **Controlling infrastructure costs:** The Centre argues that excessive mineral levies can increase the cost of minerals and consequently raise infrastructure costs.
5. **Supporting critical minerals:** A predictable regulatory framework can support the objectives of the Union government's Critical Mineral Mission and strengthen domestic mineral security.

Concerns and challenges

1. **Impact on state revenues:** Mineral-rich states such as Odisha, Jharkhand and Chhattisgarh depend significantly on mining-related revenue as a source of non-tax revenue.
2. **Fiscal federalism:** The amendments have raised concerns about the erosion of states' taxation powers and the balance between Centre and states.
3. **Supreme Court ruling:** The amendments follow the Supreme Court's recognition of states' power to impose taxes on mineral rights and mineral-bearing lands, along with permission to recover arrears dating back to April 1, 2005.
4. **Revenue mobilisation by states:** Following the judgment, some states sought additional revenues through mineral-bearing land taxes. For example, Jharkhand imposed a tax on iron ore, while Tamil Nadu introduced a tax on limestone.
5. **Centre-state friction:** Although the government maintains that states will continue to receive the overwhelming share of mining revenue, concerns regarding reduced fiscal autonomy need to be addressed.

Way Forward

1. The Centre and states should develop a **consultative and transparent framework** for rationalising mining taxes and royalties.
2. The framework should balance **investment competitiveness with the legitimate revenue needs of mineral-rich states**.
3. Greater uniformity in taxation should be accompanied by **clear revenue-sharing mechanisms** to protect fiscal federalism.
4. Predictable taxation, regulatory stability and efficient mining governance should be pursued together to attract investment.

Conclusion: The rationalisation of mining taxes and royalties can make India's mining sector more competitive and investment-friendly. However, its success will depend on maintaining a **careful balance between economic efficiency and cooperative fiscal federalism**, ensuring that greater predictability for investors does not come at the cost of legitimate state revenues and autonomy.

Question: The Mines and Minerals (Development and Regulation) Amendment Bill, 2026 seeks to rationalise mining taxation and create a more predictable investment environment. Discuss its implications for investment, state revenues and fiscal federalism.

Source: Indian Express

Paradigm shift in oil exploration

Source: The post "**Paradigm shift in oil exploration"** has been created based on **"Paradigm shift in oil exploration"** published in "**Business Line**" on 19th August 2026.

UPSC Syllabus: GS-3- Economy

Context: India's dependence on imported oil and gas, along with the stagnation of deepwater exploration, has pushed the government towards a new approach. The **₹84,084 crore Samudra Manthan or National Offshore Exploration Scheme**, approved for implementation up to FY 2030-31, seeks to accelerate offshore exploration through direct public investment, risk-sharing and common infrastructure.

Samudra Manthan marks a paradigm shift

1. **From regulator to risk-sharer:** Unlike earlier reforms that mainly provided fiscal and regulatory incentives, the government will directly co-fund **50 per cent of the cost of high-risk exploratory wells**.
2. **Public investment in infrastructure:** The government will finance common subsea production and evacuation infrastructure, including shared offshore pipeline networks.
3. **Mission-mode exploration:** The scheme adopts an integrated approach covering seismic surveys, deepwater drilling, frontier-basin exploration, infrastructure, technology and capacity building.
4. **Sharing geological risks:** Earlier regimes such as NELP, HELP and OALP largely left the financial and geological risks of deepwater exploration with private companies. Samudra Manthan seeks to share these risks with the private sector.

Potential benefits

1. **Strengthening energy security:** Greater domestic exploration and production can reduce India's dependence on imported oil and gas, particularly amid geopolitical uncertainties.
2. **Unlocking offshore resources:** India has significant unexplored offshore potential, especially in deepwater and ultra-deepwater basins.
3. **Reserve accretion:** The scheme aims to catalyse the addition of **over 600 MMTOE** of reserves.
4. **Higher domestic production:** Accelerated exploration could help reverse the decline in domestic hydrocarbon production over time.
5. **Technology development:** The scheme can promote advanced seismic technologies, deep-sea drilling capabilities and domestic expertise in offshore operations.

6. **Manufacturing and employment:** Development of an integrated oil and gas manufacturing and services ecosystem can support **Make in India and Atmanirbhar Bharat**, while generating employment.
7. **Common infrastructure:** Shared offshore pipelines and evacuation infrastructure can reduce duplication of investment and make marginal or difficult fields more commercially viable.

Key challenges

1. **High geological risk:** Deepwater exploration has a high failure rate, with around **three out of four wells potentially failing to yield commercial discoveries**. Public co-financing could therefore expose taxpayers to substantial losses.
2. **High technological requirements:** Deepwater operations require specialised equipment, sophisticated drillships and complex subsea systems. India currently lacks a sufficiently strong domestic ecosystem for such technologies.
3. **Dependence on global service providers:** Indian hydrocarbon exploration continues to rely significantly on international oilfield-service companies, creating challenges for technological self-reliance.
4. **Long gestation period:** Deepwater projects can take **5–10 years** from initial exploration to the first commercial production. Therefore, the scheme cannot provide an immediate solution to India's current import dependence.
5. **Coordination challenges:** Common infrastructure involving competitors such as ONGC, Oil India and Reliance Industries will require transparent tariff-setting, volume allocation and strong legal mechanisms.
6. **Fiscal scrutiny:** Since public funds will bear part of the exploration risk, unsuccessful wells could invite political and public scrutiny regarding the use of taxpayer money.
7. **Implementation risks:** The success of the scheme will depend on efficient coordination among government agencies, public sector companies, private firms and technology providers.

Way Forward

1. The government should establish **transparent criteria for selecting wells and projects** eligible for public risk-sharing.
2. Strong **monitoring and accountability mechanisms** should ensure that public funds are not inefficiently deployed.
3. India should simultaneously develop domestic capabilities in **subsea engineering, drilling equipment and offshore technology**.
4. Common infrastructure should operate through **transparent tariffs, independent regulation and clear access rules**.
5. Public investment should complement, rather than crowd out, private investment and technological expertise.
6. The scheme should be aligned with India's broader transition towards **cleaner and renewable sources of energy**, while recognising the continuing role of hydrocarbons in the medium term.

Conclusion: Samudra Manthan represents a **structural shift from incentive-based regulation to active public-private risk sharing** in offshore exploration. Its success will depend on whether the government can convert public investment into commercially viable discoveries while managing geological, technological and bureaucratic risks. If implemented transparently and efficiently, it can strengthen India's long-term energy security and build domestic offshore capabilities.

Question: Discuss the rationale, potential benefits and key challenges associated with the Samudra Manthan (National Offshore Exploration Scheme) . How can it contribute to India's long-term energy security while remaining aligned with the country's energy transition?

Source: Business Line

What Drives Corporate Investment?

UPSC Syllabus: Gs Paper 3- Indian economy
Introduction

Corporate investment in India has remained weak for several years, raising questions about what determines firms' investment decisions. Investment depends on **expected profitability, confidence about future profits and the cost of credit**, but these factors affect firms differently according to their size and access to own capital. The prolonged decline after demonetisation, despite later low interest rates and a corporate tax cut, suggests that reducing investment costs alone may not be enough to revive corporate investment in India.

Key Drivers of Corporate Investment

1. **Expected profitability:** Firms invest when expected returns from producing and selling goods justify the cost of establishing additional productive capacity.
2. **Economies of scale:** Larger equipment, factories and workspaces generally provide higher profit rates, making expected profitability rise with investment size.
3. **Market limit:** A firm cannot profitably expand its factory beyond the sales possible within its share of the total market.
4. **Business confidence:** Confidence about future profits shifts the profitability curve outward, while pessimism reduces expected returns and discourages investment.
5. **Effect of shocks:** Demonetisation reduced immediate profitability and weakened confidence in future policy, shifting profitability expectations inward across firms.
6. **Opportunity cost of interest:** Firms compare expected investment profitability with the market interest rate before choosing long-term productive investment projects with uncertain future returns over time.
7. **Borrowing cost:** Investment requires expected profitability to exceed market interest rates, while borrowing makes credit costs increasingly important as debt rises.
8. **Increasing risk:** Michal Kalecki's principle of increasing risk shows that borrowing costs rise with greater dependence on external funds.

Role of Firm Size and Access to Credit

1. **Small firms are credit-constrained:** Firms with little own capital face rising credit costs earlier, so their investment depends more heavily on external finance.

2. **Large firms are market-constrained:** Firms with greater own capital face less financial pressure, so their investment is more likely limited by market demand rather than credit availability.

3. **Profitability rises with firm size:** Larger firms benefit from economies of scale, with median profit rates rising from about **10.6% for small firms to 12.6% for medium and 12.9% for large firms**.

4. **Smaller firms face higher interest costs:** Median interest costs are about 9.8% for small firms, 9.3% for medium firms and 7.6% for large firms, reflecting the greater financing burden on smaller firms.

5. **Capital availability differs sharply:** Median capital stock rises from ₹14.5 crore for small firms to ₹156.8 crore for medium and ₹1,745.9 crore for large firms, showing the major difference in own-capital capacity.

Evidence from Indian Manufacturing

1. **Investment surged before the Global Financial Crisis:** Corporate investment rose from **4.9% of GDP in 2000-01 to 17.3% in 2007-08**, showing a sharp expansion in the investment share during this period.

2. **Investment fell during the Global Financial Crisis:** The investment share declined to **11.3% in 2008-09**, reflecting the impact of the external economic shock.

3. **Investment recovered before demonetisation:** After the Global Financial Crisis, corporate investment began a steady revival but was disrupted when demonetisation hit the economy in **2016**.

4. **Post-demonetisation decline persisted:** Corporate investment continued to decline after 2016 and reached only **10.3% of GDP in 2024-25**, remaining below its 2008-09 level.

5. **The later shock was different:** Unlike the Global Financial Crisis, which was an external shock, demonetisation was a domestic policy shock; Covid-19 came later, after investment had already begun declining.

Limitations of Interest Rate and Tax-Based Measures

1. **Lower interest rates:** A fall in interest rates may not revive small-firm investment when their main problem is limited access to credit rather than the market rate itself.

2. **Limited effect on large firms:** Large firms that are already less constrained by credit may not respond strongly to cheaper borrowing because their main constraint is market demand.

3. **Corporate tax cut:** The corporate tax rate was reduced from **30% to 22% in 2018**, but corporate investment did not respond with a sustained revival.

4. **Low-interest regime:** The low-interest-rate regime followed by the RBI also failed to generate a strong investment response, suggesting that lower financing costs alone are insufficient.

5. **Core limitation:** Cost-side policies may have limited impact when firms lack confidence in future profitability or face weak demand for additional production.

Government Spending and Demand Creation

1. **Profitability stimulus:** Stronger demand can increase firms' expected profits and encourage them to expand production and invest in new capacity.

2. **Role of government spending:** Government expenditure can create additional demand, improving firms' expectations about future profits and encouraging investment.

3. **Shared investment effect:** Higher expected profitability can encourage investment by both small and large firms, unlike policies that mainly reduce borrowing costs.

4. **Employment connection:** Demand creation can support higher investment while also addressing the need for gainful employment.

5. **Fiscal choice:** Using government expenditure as a stronger stimulus would require moving away from a strongly restrictive fiscal approach and giving greater importance to demand support.

Conclusion

Corporate investment is driven by **expected profitability, business confidence, market demand and financing conditions**, with different constraints across firm sizes. Indian evidence shows that smaller firms face higher financing costs, while larger firms have greater capital access. Since lower interest rates and tax cuts alone have not revived investment, stronger government spending and demand creation can improve profitability expectations and support broader investment.

Question for practice:

Examine the key factors driving corporate investment in India and the role of government spending in reviving it.
Source: The Hindu

Decentralised Education, Create Jobs

UPSC Syllabus: Gs Paper 3- Issues relating to development and management of Social Sector/Services relating to Education, Human Resources.
Introduction

India's large young population is increasingly educated, but many young adults still face unemployment and weak employment prospects. The core problem is not only access to education but also its **quality, relevance and connection with jobs**. Decentralised education offers one supporting response by making learning more flexible and closer to changing skill needs. The wider goal is to improve education and create enough decent work to convert India's demographic potential into growth.

Expansion of Education and the Rise of India's Educated Youth

1. **Growing Graduate Population:** Between 1983 and 2023, graduate-level education among 20–29-year-olds rose from **4% to 28%**, increasing from **5 million to 63 million**.

2. **Wider Social Access:** Caste and gender gaps in tertiary education and graduate employment have reduced, widening educational opportunities across previously disadvantaged groups.

3. **Occupational Mobility:** Education has helped Scheduled Tribes move away from traditional occupations such as **leather work and waste collection**.

4. **IT Sector Growth:** The substantial graduate pool has supported India's information technology boom, with current exports of about **$250 billion**.

5. **Global Capability Centres:** Around **2,100 Global Capability Centres** now employ over **2 million people**, showing the economic value of India's educated workforce.

6. **Remittance Contribution:** Around **$140 billion in inward remittances** is substantially linked to the growth of tertiary- and high-school-educated Indians working abroad.

7. **Youth Population:** About **367 million people below 30** form a major part of the generations relevant to India's long-term growth.

Key Concerns in Education and Employment

1. **High Youth Unemployment:** Unemployment remains nearly **40% among 15–25-year-olds** and **20% among 25–29-year-olds**, despite the expansion of higher education.

2. **Weak Transition to Jobs:** Only a few graduates secure stable salaried employment within a year of graduation, showing that educational expansion has not ensured secure employment.

3. **Shortage of Job-Ready Graduates:** Companies lack enough adequately qualified graduates who can work without substantial post-recruitment training, creating a serious employability gap.

4. **Surplus of Poorly Qualified Graduates:** India also has a surplus of poorly qualified graduates, showing that increasing graduate numbers alone cannot solve the employment problem.

5. **Stagnant Public Investment:** Government education spending has remained around **4% of GDP** for a long period, below the **6% target** supported by National Education Policy 2020.

6. **Declining Central Commitment:** Central education spending fell from **3.7% of total expenditure in 2016–17 to 2.4% in 2024–25**, while its GDP share declined from **0.47% to 0.33%**.

7. **Private Tuition Burden:** Nearly half of urban XI–XII students spend about **₹10,000 annually** on private tuition, while about one-third of rural students spend around **₹4,500**.

8. **Quality and Relevance Gap:** Outdated curricula and teaching can leave graduates without current knowledge and practical skills, increasing the gap between education and workplace requirements

Decentralised Education as a Supporting Response

1. **Meaning of Decentralised Education:** It shifts some control from established educational institutions towards learning solutions created by **teachers, industry professionals and other skilled educators**.

2. **Industry-Led Learning:** Decentralised models allow industry professionals and skilled teachers to create learning resources based on current knowledge and workplace requirements.

3. **Flexible Alternatives:** Learning pods, micro-schools and virtual platforms can provide alternatives to conventional institutions and give learners greater flexibility.

4. **Faster Skill Adaptation:** Digital platforms can update learning content more quickly as job requirements change, helping learners acquire relevant skills.

5. **Support for Emerging Careers:** Alternative learning models can support non-traditional careers that conventional education systems may not yet adequately cover.

6. **Student Choice:** Ratings, reviews and feedback can give learners greater influence over course selection and encourage competition among education providers.

7. **Education Entrepreneurship:** Teachers and professionals can create and sell educational content, creating income opportunities within the education ecosystem.

8. **Complement, Not Replacement:** Decentralised education can complement traditional institutions by adding flexible, practical learning without removing the need for recognised educational standards.

Role of Government in Education and Employment

1. **Centre–State Responsibility:** States account for **80–85% of public education spending**, while the Centre has an important role in standards and education-reform goals.

2. **Need for Coordinated Governance:** Education policy should combine Centre and State responsibilities through a coherent framework rather than becoming a process of Centre-led dictation.

3. **Higher Education Investment:** Governments need stronger spending from primary to tertiary levels to improve education quality, graduate skills and employment prospects.

4. **Industry-Oriented Education:** Better knowledge and skills among graduates are essential for promoting manufacturing, especially as internet-sector services face disruption from artificial intelligence.

5. **Labour-Intensive Manufacturing:** Employment policy should promote labour-intensive manufacturing, much of which can come from medium and small enterprises offering decent jobs.

6. **Regional Employment Focus:** Northern states account for most workforce additions and therefore need stronger education quality and industries that can absorb high-school and tertiary graduates.

7. **Education–Infrastructure Balance:** Infrastructure investment alone has not sufficiently boosted manufacturing; higher education spending is also needed to improve graduate skills and support industrial growth.

Way Forward

1. **Reach the Spending Target:** Governments need stronger action to move public education spending towards the **6% of GDP target** and improve educational content.

2. **Improve Education Quality:** Investment should strengthen knowledge, teaching quality and practical skills so graduates are better prepared for employment without substantial additional training.

3. **Modernise Learning Content:** Traditional institutions should regularly update curricula and teaching methods so students gain knowledge and skills relevant to changing technologies and careers.

4. **Link Education with Industry:** Industry professionals can contribute to learning content so that students gain skills more closely connected with workplace requirements.

5. **Use Flexible Learning Models:** Decentralised education can complement traditional institutions by offering flexible learning and skills for emerging careers while maintaining recognised standards.

6. **Promote Job-Creating Sectors:** Manufacturing policy should support labour-intensive activities and medium and small enterprises that can provide employment for educated young people.

7. **Strengthen Cooperative Federalism:** States need flexibility to manage programmes according to local conditions within a coherent framework jointly shaped by the Centre and states.

8. **Make Youth a Development Priority:** Development policy should focus directly on improving education quality and creating better employment prospects for high-school and tertiary graduates.

Conclusion:

India's large educated youth population can become a **demographic dividend** only when education provides relevant skills and employment opportunities. Higher public investment, better teaching, stronger education–industry links and flexible learning models can improve employability. Decentralised education can complement traditional institutions, but governments must ensure **quality, coordinated policy and employment-generating growth** so that young people can contribute fully to India's development.

Question for practice

Discuss how decentralised education can improve youth employability and help create jobs in India.
Source: Business Standard

The case for tax-free annuities

Source: The post **"The case for tax-free annuities" has been created based on "The case for tax-free annuities"** published in "Business Line" on 20th August 2026.

UPSC Syllabus: GS 2- Governance

Context: India's ageing population has increased the need for **secure, lifelong retirement income**, while annuities also mobilise long-term capital into government securities.

About Annuity

An annuity converts retirement savings into a **guaranteed stream of income for the lifetime of the retiree**. It transfers longevity risk to a regulated insurer and also mobilises long-term capital that is substantially invested in government securities and State Development Loans. Therefore, providing targeted tax relief to annuities can serve both **individual retirement security and wider public-finance objectives**.

Reason behind Annuities Deserve Tax Preference

1. **Annuities mobilise long-term capital:** Retirement savings invested in annuities are deployed by insurers in long-duration assets, with a substantial share ultimately flowing into **Government Securities and State Development Loans**.
2. **The existing tax treatment creates an asymmetry:** The government provides tax benefits to investors who lock their money into five-year infrastructure bonds, while retirees who commit their savings to annuities for 20–30 years continue to face slab-rate taxation.
3. **Annuities serve the same public-finance objective for longer:** Like tax-incentivised infrastructure bonds, annuities mobilise stable capital for the economy, but they do so over a much longer period while also providing retirement security.
4. **Recent GST reform supports further reform:** The GST Council's decision of September 22, 2025, to exempt individual life insurance and annuity premiums from **18% GST** was a positive step, but taxation of the periodic annuity payout remains unresolved.

Annuities Strengthen Retirement Security

1. **Annuities provide guaranteed lifetime income:** Unlike mutual funds, equity portfolios, fixed deposits and SWPs, an annuity provides income for as long as the annuitant survives.
2. **Annuities transfer longevity risk:** Through **mortality pooling**, regulated insurers assume the risk that an individual may outlive their accumulated retirement corpus.
3. **Annuities reduce the risk of exhausting retirement savings:** Self-managed portfolios face market volatility, reinvestment-rate risk and uncertainty regarding the sustainable withdrawal rate, whereas annuities provide predictable cash flows.
4. **Annuities can reduce future dependence on the State:** Retirees with assured lifetime income are less likely to require emergency welfare or social-security support in old age.

Existing Tax Rules Create Anomalies

1. **Tax policy has not fully kept pace with NPS reforms:** PFRDA reduced mandatory annuitisation for non-government subscribers on normal exit from **40% to 20%** and removed mandatory annuitisation for a corpus of **₹8 lakh or less**.
2. **The lump-sum exemption remains limited to 60%:** Consequently, the additional 20% that can now be withdrawn under the revised framework is taxable at slab rates, indicating a mismatch between pension regulation and tax policy.
3. **Non-NPS annuities can face double taxation:** The initial corpus may consist of already-taxed household savings, but Indian tax law does not adequately distinguish between the **return of principal and the actual investment yield** in the annuity payout.
4. **The retirement-planning ecosystem also disadvantages annuities:** SCSS remains more prominent in pre-retirement discussions, while chartered accountants and wealth advisers may prefer tax-efficient or AUM-preserving alternatives, reducing annuity adoption.

A Targeted Tax Reform Can Address the Problem

1. **A ₹12 lakh annual exclusion can protect basic retirement income:** Annual annuity income up to **₹12 lakh** can be excluded from total income for eligible lifetime annuity products issued by IRDAI-registered insurers.
2. **The ₹12 lakh threshold has a policy rationale:** It corresponds to the level up to which Parliament has already determined that a resident individual should have no tax liability under the default regime.
3. **A 10% final withholding tax can apply to excess income:** Annuity income above ₹12 lakh can be subjected to a **flat 10% final withholding tax**, ensuring that the reform does not become an unlimited tax shelter.
4. **Eligibility can be restricted to genuine retirement products:** The concession should apply only to **lifetime annuities purchased at or after superannuation**, including variants that return the purchase price to nominees upon death.
5. **Strict safeguards can prevent tax arbitrage:** Disguised tax-free bonds, deferred accumulation products and surrender-heavy wealth products should remain outside the scope of the concession, with insurers undertaking **PAN-based reporting**.

Wider Fiscal and Economic Benefits

1. **Tax relief can expand the retail annuity market:** Greater attractiveness of annuities could potentially mobilise an additional **₹40,000–50,000 crore annually** into long-duration government securities and State Development Loans.
2. **Lower borrowing costs can offset revenue foregone:** Even a modest **50-basis-point reduction in sovereign borrowing costs** could generate cumulative interest savings as the stock of public debt grows.
3. **Reduced welfare dependence creates an additional fiscal benefit:** Every retiree with secured lifetime income is potentially less dependent on future state-funded old-age welfare, although this saving may not immediately appear in conventional budget calculations.

Reforms Needed for Effective Implementation

1. **Inflation-linked annuities should be promoted:** IRDAI should mandate or facilitate inflation-linked variants to protect retirees against the loss of purchasing power over long retirement periods.
2. **Standardised yield disclosures should be introduced:** Insurers should provide clear and comparable information on yields, payouts and product conditions to enable informed decisions.
3. **Distributor controls should be strengthened:** Regulation of distributors is necessary to prevent mis-selling and ensure that retirees select products according to their needs.
4. **A transparent comparison platform should be created:** PFRDA can develop a platform for comparing annuity rates and product features across providers.
5. **TDS provisions should be aligned with the exemption:** Eligible annuity income should not suffer unnecessary withholding that forces retirees to wait for refunds, as such friction can reduce the effectiveness of the reform.

Conclusion: Tax-free annuities can complete the policy trade between the State and retirees: the government can forego limited immediate tax revenue in exchange for **long-duration capital, guaranteed lifetime income and reduced future welfare dependence**. A targeted ₹12 lakh exclusion, a 10% tax on excess income and appropriate regulatory safeguards can make annuities a stronger pillar of India's retirement-security system while supporting long-term public borrowing needs.

Question: Tax treatment of annuities in India needs to balance revenue considerations with the objectives of retirement security and long-term capital mobilisation." Discuss the case for making annuity income tax-free up to a specified threshold.

Source: Business Line

Gold loans: Inclusion engine or leverage trap?

Source: The post **"Gold loans: Inclusion engine or leverage trap?s" has been created based on "Gold loans: Inclusion engine or leverage trap?Gold loans: Inclusion engine or leverage trap?"** published in "Business Line" on 20th August 2026.

UPSC Syllabus: GS 3-Indian Economy

Context: Indian households hold a very large stock of gold, estimated at $2.4 trillion and $10 trillion. The rapid expansion of gold loans is converting this idle store of wealth into collateral for formal credit, but rising loan sizes, repeat borrowing and multiple liabilities are also creating concerns about **household leverage and financial stability**.

Gold Loans Strengthen Financial Inclusion

1. **Gold loans bring idle household wealth into the formal economy:** Gold that traditionally remained a store of value can be used as collateral to access formal credit.
2. **Gold loans provide low-friction access to credit:** For households outside formal income systems, gold-backed borrowing provides an easier entry point into formal credit markets.
3. **Gold loans are becoming a mainstream financial product:** Banks, NBFCs and digital lending platforms are increasingly offering gold loans, moving the product beyond informal lending channels.
4. **Gold loans are expanding rapidly:** According to the RBI's Financial Stability Report, gold loans have been the **fastest-growing segment of non-housing retail loans**, recording a CAGR of **42.4% since March 2024**, compared with 23% for overall non-housing retail loans.
5. **The borrower base is becoming more inclusive:** The increasing participation of **prime and above-prime borrowers, women and borrowers from newer geographies** indicates deeper financial inclusion.
6. **Gold mobilisation can generate wider economic benefits:** Estimates suggest that channelling even **2% of household gold annually into financial assets** could potentially add up to **$7.5 trillion to GDP by 2047** through multiplier effects.

Macro-Economic Opportunity

1. **Gold can shift from a store of value to a source of value creation:** Financial mobilisation of household gold can allow an otherwise idle asset to participate in credit and economic activity.
2. **Gold-backed credit can strengthen formal financial channels:** Greater use of banks, NBFCs and regulated digital platforms can reduce dependence on informal credit markets.
3. **Gold loans can support broader financial deepening:** The growing participation of women, prime borrowers and new geographical markets shows that gold-backed lending can expand the reach of formal finance.

Rising Gold Loans Also Create Leverage Risks

1. **Loan sizes are increasing:** The average gold loan ticket size increased from around **₹90,000 in 2022 to nearly ₹2 lakh in 2025**, while average outstanding per borrower increased from approximately ₹1.9 lakh to ₹3.1 lakh.
2. **Gold loans are increasingly layered over existing debt:** By 2025, around **74% of gold loan originations** were to borrowers having more than ₹1 lakh of outstanding debt, compared with about 50% in 2022.
3. **Unsecured and secured borrowing are increasingly combined:** The rising share of borrowers with unsecured credit exposure indicates that gold loans are often being added to existing liabilities rather than replacing them.
4. **Repeat borrowing is increasing:** Borrowers are increasingly taking repeated gold loans and maintaining multiple active loan accounts, indicating that gold loans are becoming part of broader borrowing strategies.
5. **Multiple loans increase default risk:** Borrowers with multiple active gold loans face the highest risk of delinquency, indicating that excessive leverage can create financial stress despite the presence of collateral.
6. **Higher gold-loan exposure is associated with greater delinquency:** Borrowers with higher exposure to gold loans have delinquency rates **more than twice** those of borrowers with lower exposure.
7. **Rapid credit growth can create household financial stress:** The 42.4% CAGR in gold loans indicates that the sector is expanding much faster than overall non-housing retail credit.
8. **Collateral does not eliminate repayment risk:** Although gold provides security to lenders, borrowers can still face financial distress when multiple loans and other liabilities accumulate.
9. **Household leverage can become a systemic concern:** If repeat borrowing and multiple loan holdings continue to rise, individual credit stress could increasingly affect the wider retail-credit ecosystem.

Way Forward

1. **Credit growth should be closely monitored:** Regulators should track loan sizes, repeat borrowing, multiple gold-loan accounts and borrowers' total indebtedness.
2. **Lenders should assess overall borrower leverage:** Credit decisions should consider existing secured and unsecured liabilities rather than treating gold collateral as sufficient protection.
3. **Responsible lending practices should be strengthened:** Banks, NBFCs and digital platforms should prevent excessive borrowing and ensure that borrowers understand repayment obligations and the consequences of default.
4. **Gold should be channelled towards productive uses:** Policy should encourage the conversion of household gold into financial capital without creating excessive consumption-driven or debt-dependent borrowing.

Conclusion: Gold loans represent a **dual opportunity and risk** for India. They can financialise a vast household asset base, deepen formal credit access and support economic growth, but rising ticket sizes, repeat borrowing and multiple liabilities can turn them into a **leverage trap**. The policy challenge is therefore to convert gold from a **store of value into a source of productive value creation while maintaining household and systemic financial stability**.

Question: Gold loans can promote financial inclusion but may also increase household leverage." Discuss the opportunities and risks associated with the rapid growth of gold loans in India**.**

Source: Business Line

Why is the Supreme Court Examining Polygamy Again?

UPSC Syllabus: Gs Paper 3- Indian Constitution
Introduction

The **Supreme Court has sought the Centre's response** to a petition challenging the constitutional validity of **polygamy among Muslims**. The petition seeks to abolish the practice for all citizens and apply laws against bigamy uniformly. The case raises questions about **Muslim Personal Law, gender equality, fundamental rights and religious freedom under Article 25**. The Court has only issued notice and has not yet ruled on polygamy.

What Does the Present Petition Seek?

1. **Challenge to the 1937 Act:** The petition challenges **Section 2 of the Muslim Personal Law (Shariat) Application Act, 1937**, insofar as it recognises and validates polygamy.
2. **Declaration against polygamy:** The petitioners seek a declaration that polygamy is unconstitutional and violates the fundamental rights guaranteed to women.
3. **Uniform application of bigamy law:** They seek removal of personal-law exemptions and the application of **Section 82 of the Bharatiya Nyaya Sanhita** to all citizens.
4. **Criminal-law questions raised:** A petition has also questioned whether Sections 498A, 375 and 494 of the Indian Penal Code, 1860 should be used to criminalise triple talaq, polygamy and nikah halala, respectively.
5. **Abolition through legislation:** The Union government has been asked to take suitable legislative steps to abolish polygamy, irrespective of religion.
6. **Codification of Muslim Personal Law:** The petition seeks a codified framework for **marriage, divorce and succession** that conforms to constitutional principles of gender equality.
7. **Mandatory registration:** Muslim marriages and divorces should be compulsorily registered with State authorities to prevent secret or subsequent marriages.
8. **Protection of women and children:** The plea seeks protection regarding **maintenance and the matrimonial home** for the first wife and children affected by a subsequent marriage.
9. **Global examples cited by petitioners:** The petition highlights that **Tunisia and Turkey**, among several Muslim-majority countries, have already abolished polygamy.

What are the Constitutional Questions Involved?

1. **Equality before law:** The petition argues that polygamy violates **Article 14**, which guarantees equality before law and equal protection of laws.

2. **Gender-based discrimination:** It invokes **Article 15**, arguing that permitting multiple marriages to men raises questions of discrimination against women.

3. **Dignity and personal liberty:** The challenge also relies on **Article 21**, linking the practice with women's constitutionally guaranteed dignity and personal liberty.

4. **Personal laws and fundamental rights:** The Court must examine whether provisions under personal law can continue when they are challenged as violating fundamental rights.

5. **Religious freedom under Article 25:** The petition argues that polygamy is permissive rather than an essential religious practice and cannot automatically claim protection under **Article 25**.

6. **Gender equality and constitutional morality:** The petition asks whether a practice permitting multiple wives can survive constitutional scrutiny when weighed against gender equality and constitutional morality.

Why is Section 82 of the Bharatiya Nyaya Sanhita Important?

1. **Provision against bigamy: Section 82 of the Bharatiya Nyaya Sanhita (BNS)** deals with marrying again while an existing marriage remains legally valid.

2. **Punishment for a second marriage:** The provision provides imprisonment of up to **seven years** for contracting another marriage during the subsistence of the first marriage.

3. **Exemption under Muslim Personal Law:** The petition argues that Muslim men are exempt from prosecution for bigamy because Muslim Personal Law permits polygamy.

4. **Demand for a uniform legal position:** The petitioners seek the extension of Section 82 to all citizens, irrespective of religion.

Earlier Supreme Court Rulings and Related Pending Cases

1. Sarla Mudgal Case, 1995

- **Conversion cannot bypass marriage law:** The Supreme Court held that a Hindu man cannot convert to Islam solely to contract another marriage without dissolving his first marriage.
- **Second marriage held void:** Such a second marriage was held **void** when the first marriage remained legally valid.

2. Lily Thomas v. Union of India, 2000

- **Earlier ruling reaffirmed:** The Supreme Court reaffirmed that conversion undertaken merely to contract another marriage cannot defeat the law governing the first marriage.
- **Second marriage remained punishable:** A marriage after a feigned conversion to Islam was held illegal and punishable under **Section 494 of the Indian Penal Code**.

3. Shayara Bano Case, 2017

- **Instant triple talaq was invalidated:** The Supreme Court invalidated **instant triple talaq (immediate and irrevocable divorce through three pronouncements)** in August 2017.

- **2019 law criminalised instant triple talaq:** The **Muslim Women (Protection of Rights on Marriage) Act, 2019**subsequently made instant triple talaq a punishable offence.

4. Earlier challenge before a Constitution Bench

- **Challenge to Section 2 in 2022:** In **August 2022**, a Constitution Bench issued notices while hearing petitions challenging **Section 2 of the Muslim Personal Law (Shariat) Application Act, 1937**, concerning polygamy and nikah halala.

- **Notices to statutory commissions:** In the same batch of petitions, the Constitution Bench sought responses from the **National Commission for Women, National Commission for Minorities and National Human Rights Commission**.

5. **Related pending matters**

- **Talaq-e-hasan is also under challenge:** The Supreme Court is examining **nine petitions challenging talaq-e-hasan (divorce through three successive pronouncements over separate periods)**.

- **Cases have been tagged together:** The present petition has been tagged with similar pending matters, bringing several questions concerning Muslim Personal Law before the Court.

What is the Debate Within Muslim Personal Law?

1. **Islam does not simply encourage polygamy:** The Quran permits up to **four wives** only under certain circumstances and places strict conditions on such marriages.

2. **Equality among wives is compulsory:** A man entering multiple marriages must provide complete and equal justice to all his wives.

3. **Preference for one marriage where justice is uncertain: Verse 3 of Surah Nisa** directs men to remain with one wife if they fear failing to maintain justice.

4. **Historical context of the provision:** The verse emerged when men could have a very large number of wives, while the provision limited the number to four.

5. **Question of constitutional protection:** The petition argues that polygamy is a permissive practice, not an essential religious practice, and therefore cannot claim automatic protection under Article 25 when tested against gender equality and constitutional morality.

What is the Position of the All India Muslim Personal Law Board (AIMPLB)?

1. **AIMPLB has sought impleadment:** The **All India Muslim Personal Law Board (AIMPLB)** has moved an application to become a party in the matter.

2. **Hindu marriage laws also retain customs:** Referring to **Section 29 of the Hindu Marriage Act, 1955**, the AIMPLB argued that Hindu marriage and divorce laws are themselves not completely uniform.

3. **Section 29(2) protects customs:** The AIMPLB pointed out that **Section 29(2)** protects certain existing customs and practices despite the statutory framework governing Hindu marriages.

Conclusion

The case requires the Supreme Court to examine whether **polygamy permitted under Muslim Personal Law** can continue alongside constitutional guarantees of equality, dignity and personal liberty. The Court must also consider claims relating to **Article 25, uniform bigamy laws and gender justice**. For now, it has only sought responses and tagged related cases; no ruling has yet been delivered.

Question for practice:

Discuss the constitutional, legal and religious issues involved in the Supreme Court's examination of polygamy under Muslim Personal Law.
Source: The Hindu

The Vexed Problem of Fertilizer Overuse and Subsidy

UPSC Syllabus: Gs Paper 3- Issues related to direct and indirect farm subsidies and minimum support price
Introduction

India's fertilizer sector faces a growing challenge of **import dependence, rising subsidy costs and inefficient fertilizer use**. Geopolitical disruptions have increased the prices of fertilizers, natural gas and other inputs, exposing India's dependence on external supplies. At the same time, heavily subsidised urea has encouraged its excessive use and created nutrient imbalance, soil degradation and diversion. The challenge is to ensure fertilizer availability and affordability while reducing wasteful consumption and fiscal pressure.

1. Present Status of India's Fertilizer Sector

1. **Large Fertilizer Consumption:** India consumes around 70 million tonnes of fertilizers annually.

2. **Dominance of Urea:** Urea accounts for around 55% of total fertilizer consumption, while annual consumption stands at nearly 40 million tonnes.

3. **Heavy Import Dependence:** Around 25% of India's urea requirement, or 10 million tonnes, is imported, mainly from Gulf countries, exposing supplies to external shocks.

4. **Dependence on Imported Inputs:** Domestic urea production also depends on imported natural gas, while India imports most potash, major phosphatic inputs and ammonia.

5. **High Subsidy Support:** The Union Budget 2026-27 provided ₹1.71 lakh crore for fertilizer subsidy, while subsidy expenditure has also risen sharply in recent years.

6. **Heavy Urea Subsidy:** A 45 kg bag of urea costs farmers around ₹270 against an average government cost of nearly ₹2,700, with its price unchanged since 2018.

Major Challenges in the Fertilizer Sector

1. **Geopolitical Supply Vulnerability:** Conflicts and disruptions in West Asia, including risks around the Strait of Hormuz, have increased uncertainty in fertilizer and natural gas supplies.
2. **Rising Import and Transport Costs:** Higher prices of urea and natural gas, along with increased shipping and insurance costs, have sharply raised India's fertilizer import expenditure.
3. **Growing Subsidy Burden:** Rising global prices increase the gap between the fixed farmer price and actual fertilizer cost, putting greater pressure on government finances.
4. **Excessive Urea Use:** Cheap urea encourages farmers to apply it in large quantities, creating excessive dependence on nitrogen-based fertilizer.
5. **Imbalanced Nutrient Use:** The recommended Nitrogen-Phosphorus-Potassium (NPK) ratio is 4:2:1, but actual usage has reached around 11:4:1.
6. **Low Nutrient Efficiency:** Studies indicate that 40-70% of applied nutrients are lost through leaching, volatilisation and runoff instead of being absorbed by crops.
7. **Diversion of Subsidised Urea:** Estimates suggest that 20-25% of urea is diverted for non-agricultural uses, including industries such as glass and plywood.
8. **Distortions in Fertilizer Distribution:** Dealer practices such as tagging can force farmers to purchase other crop nutrients while buying subsidised fertilizers, increasing their costs unnecessarily.

Consequences of the Existing Fertilizer System

1. **Pressure on the Import Bill:** Higher fertilizer and input prices can sharply increase import expenditure, adding to the economic burden created by rising fuel imports.
2. **Stress on Fiscal Consolidation:** Additional spending on fertilizer imports and subsidies can increase pressure on the fiscal deficit and affect the government's fiscal consolidation path.
3. **Declining Fertilizer Response:** The fertilizer-to-output ratio has reportedly fallen from 1:10 to around 1:2, showing lower returns from fertilizer use.
4. **Declining Soil Health:** Excessive and imbalanced fertilizer use degrades soil quality, reduces long-term fertility and affects the productive capacity of agricultural land.
5. **Groundwater and Environmental Pollution:** Nutrient losses through leaching and runoff contribute to groundwater pollution, while excessive urea use also harms the wider environment.

6. **Higher Nitrous Oxide Emissions:** Overuse of urea contributes to the release of nitrous oxide, adding a climate-related cost to inefficient fertilizer consumption.

7. **Reduced Farm Profitability:** Nutrient wastage raises input use without matching gains in output, reducing the efficiency and profitability of farming.

Government Initiatives

1. **Fertilizer Subsidy System:** The government provides heavy subsidies to keep fertilizers affordable, particularly urea, and ensure their availability to farmers.

2. **Land Record-Based Distribution:** Fertilizer sales are being linked with land records to improve identification of users and reduce diversion for non-agricultural purposes.

3. **Aadhaar Verification:** Aadhaar verification of purchasers has been used as a measure to check misuse and diversion of urea.

4. **State-Wise Fertilizer Allocation:** The Union Government allocates fertilizers to States based on factors such as land data and cropping patterns.

5. **Farmer Registry Development:** Work on a farmer registry is underway to identify which farmer is cultivating which crop and on how much land.

6. **Extension Support:** Indian Council of Agricultural Research (ICAR), State Agricultural Universities and Krishi Vigyan Kendras (KVKs) can spread knowledge on efficient nutrient management.

Need for a Shift Towards Efficient Nutrient Management

1. **Shift to Balanced Nutrient Management:** India needs to move from excessive fertilizer application towards balanced nutrient use that improves absorption and reduces wastage.

2. **Expand High Nutrient Use Efficiency Fertilizers:** High Nutrient Use Efficiency (High NUE) fertilizers are designed to improve nutrient absorption and reduce losses through advanced formulations.

3. **Reduce Conventional Fertilizer Requirement:** Field evidence suggests balanced nutrition using High NUE products can reduce conventional fertilizer needs by 25-50% in select crops.

4. **Improve Crop Productivity:** Controlled trials have shown yield increases of 15-40% in select crops, along with improvements in soil microbial activity and nutrient density.

5. **Promote Alternative Nutrient Sources:** Greater use of bio-fertilizers, micronutrients and other specialised fertilizers can support balanced nutrition and reduce excessive dependence on conventional fertilizers.

6. **Strengthen Domestic Manufacturing:** Expanding indigenous High NUE and specialty fertilizer production can reduce dependence on imported ammonia, potash, phosphates and other inputs.

7. **Rationalise Subsidies Across Fertilizers:** Subsidy levels should be adjusted to reduce the present bias towards urea and encourage balanced use of different plant nutrients.

Way Forward

1. **Coordinate Union and State Action:** States can complement Union-level allocation by planning fertilizer distribution at the block and village levels according to local requirements.
2. **Fix User-Based Fertilizer Requirements:** Farmer registries, land data and cropping patterns can help determine an appropriate quantity of urea for each actual fertilizer user.
3. **Include Tenant Farmers:** A suitable system, including self-declaration verified by landowners or local authorities, is needed for cultivators without formal land records.
4. **Move Towards Direct Subsidy Transfer:** Subsidies can be credited directly to eligible fertilizer users while fertilizers are sold at market rates, reducing misuse and excessive consumption.
5. **Link Subsidy with Actual Cultivation:** GPS-based field pictures can help verify that farmers have actually cultivated crops and used fertilizers before releasing subsidies.
6. **Address Unlawful Stocking:** Stronger monitoring and the suggested recognition of "unlawful stock" can help address diversion and other irregularities in fertilizer distribution.
7. **Encourage Crop Diversification:** Incentives can support a shift from paddy towards pulses and oilseeds, reducing dependence on fertilizer, water and related subsidies.
8. **Reduce Multiple Import Dependencies:** Crop diversification can simultaneously lower imports of fertilizers, oilseeds and pulses and reduce exposure to geopolitical supply shocks.
9. **Build Farmer Awareness and Consent:** Mass communication, farmer dialogues and agricultural extension should explain the economic and environmental costs of excessive urea use.
10. **Strengthen Policy Support and Innovation:** Coordinated policy, institutional adoption, industry-guided research and domestic innovation are needed to expand sustainable fertilizer alternatives.

Conclusion

India must move from **subsidy-driven fertilizer consumption to efficient nutrient management**. Better targeting of subsidies, balanced fertilizer use, High NUE products, stronger distribution systems and crop diversification can reduce imports and fiscal pressure. Farmer participation and pilot-based reforms are essential to improve soil health, productivity and long-term fertilizer security.

Question for practice:

Examine the challenges posed by fertilizer overuse and subsidies in India, and suggest measures to promote efficient and sustainable fertilizer use.

Source: Businessline

Can free public technology break the private coaching industry?

Source: The post **"Can free public technology break the private coaching industry?" has been created based on "Can free public technology break the private coaching industry?"** published in **"The Hindu"** on 21st August 2026.

UPSC Syllabus: GS 2- Governance

Context: The government's proposed free online coaching through Digital Public Infrastructure has the potential to democratise access to competitive examination preparation. However, private coaching provides not merely content but a structured and competitive learning ecosystem.

Potential benefits:

- **Educational equity:** It can reduce the financial burden on poor and middle-class families and overcome geographical barriers.
- **Personalised learning:** Agentic AI can provide customised content, rapid feedback and multiple learning formats.
- **Exam-oriented preparation:** Specialised modules can develop problem-solving, time management and test-taking strategies required for JEE, NEET and other competitive examinations.
- **Last-mile access:** Smart boards, offline content and satellite connectivity can extend quality coaching to remote areas.

Challenges:

- **Digital divide:** Poor internet connectivity, electricity shortages and inadequate devices can exclude disadvantaged students.
- **Content versus coaching:** Merely uploading lectures may create another video library without structured learning.
- **Lack of mentorship:** Technology cannot completely substitute teachers who provide academic and emotional support.
- **Assessment gap:** Students require regular tests, doubt resolution, performance tracking and personalised feedback.
- **Exam diversity:** JEE, NEET and UPSC have different patterns and skill requirements; a single common curriculum may dilute quality.
- **Quality assurance:** Maintaining consistently high-quality faculty and content across numerous national-level examinations would be difficult.

Way forward:

- Develop **exam-specific digital platforms** with structured courses, assessments, doubt-solving and progress tracking.
- Use **AI-based personalised learning** while retaining human teachers and mentors.
- Establish **school-based skill hubs** for periodic physical mentoring and peer learning.
- Provide **offline/downloadable content and community digital centres** in areas with weak connectivity.
- Build a common foundation for reasoning, language and general awareness while retaining specialised modules for individual examinations.
- Ensure continuous monitoring, independent evaluation and student feedback to maintain quality.

Conclusion: Free public technology can weaken excessive dependence on private coaching only when it replicates the **complete coaching ecosystem—content, testing, feedback, mentorship and peer learning**. A technology-first but human-centred hybrid model can make competitive examination preparation more equitable and accessible.

Question: "Free online coaching through India's Digital Public Infrastructure can reduce dependence on private coaching, but access to lectures alone cannot address the deeper structural problems of competitive examination preparation." Discuss.

Source: The Hindu

India's gene-edited rice is ready for the fields

Source: The post **"India's gene-edited rice is ready for the fields" has been created based on "India's gene-edited rice is ready for the fields"** published in **"Business Line"** on 21st August 2026.

UPSC Syllabus: GS 3- Indian Economy

Context: India is preparing to commercially introduce **Pusa Rice DST1** in the upcoming rabi season, marking an important step in the application of genome-editing technology to agriculture. Along with **DRR Dhan 100 (Kamala)**, it represents an attempt to improve productivity and climate resilience in rice cultivation.

Key developments

1. **Pusa Rice DST1** has been developed by ICAR-IARI from the MTU1010 variety.
2. It involves **SDN-1 genome editing** of the **Drought and Salt Tolerance (DST) gene** to improve tolerance to drought and saline or alkaline soils.
3. Field trials reported **9.66%–30.4% yield advantages** over MTU1010 under different saline and alkaline conditions.
4. **DRR Dhan 100 (Kamala)** was developed by ICAR-Indian Institute of Rice Research from Samba Mahsuri.
5. Its gene editing targets a gene involved in **cytokinin metabolism**, increasing grains per panicle.
6. Kamala matures in around **130 days**, approximately 20 days earlier than Samba Mahsuri, and has stronger stems that reduce lodging.

Why does it matter?

1. The varieties can improve **productivity and resource-use efficiency**.
2. Pusa DST1 can help farmers cope with **drought and soil salinity**.
3. Kamala's shorter duration can reduce the crop cycle and potentially conserve resources.
4. Climate-resilient varieties can strengthen India's agricultural response to **climate change**.
5. Wider cultivation can potentially benefit farmers across several States, including Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Uttar Pradesh and West Bengal.

Gene editing versus GM crops

1. **GM crops** generally involve introducing genetic material from another organism into the plant.
2. **Genome editing** can make targeted changes in genes already present in the plant.

3. **SDN-1** generally produces small insertions or deletions, while **SDN-2** introduces a specific small change using a repair template.
4. **SDN-3** can introduce a new genetic sequence and remains outside the exemption applicable to SDN-1 and SDN-2.
5. India's **2022 guidelines** exempted qualifying transgene-free SDN-1 and SDN-2 plants from the more rigorous regulatory process applicable to SDN-3.
6. Both new rice varieties are **SDN-1 edited and transgene-free**.

Concerns

1. The absence of foreign DNA does not automatically establish that the crop has **no unintended effects**.
2. Unintended mutations could potentially alter gene functioning, biochemistry, nutritional characteristics, toxins or allergens.
3. The reported yield gains need to be assessed across **different environments and farming conditions**.
4. High yield gains in one trait could involve **trade-offs in other traits**.
5. Wider scientific scrutiny is required regarding the **mechanism behind the reported yield advantages**.
6. Farmers and consumers need transparent information regarding **biosafety, performance and long-term effects**.
7. The experience of GM crops such as **Bt cotton, Bt brinjal and GM mustard** shows that technological adoption also involves ecological, regulatory and socio-economic concerns.

Regulatory and global context

1. The government states that the rice varieties underwent biosafety scrutiny for **absence of foreign DNA, mutation stability and robustness of traits**.
2. Each variety was reportedly tested at **more than 50 locations during 2023–24**.
3. India currently permits **Bt cotton** as its only GM crop for commercial cultivation.
4. Bt brinjal completed the regulatory process but was not commercially approved, while GM mustard received conditional environmental clearance and became subject to legal challenges.
5. Globally, countries are developing separate regulatory approaches for transgene-free gene-edited crops.
6. The **US, Canada and Japan** have permitted certain gene-edited crops or foods.
7. The UK introduced a separate precision-breeding framework, while the **EU adopted a new framework for New Genomic Techniques in 2026**, including a category for crops involving changes that could occur naturally.

Way forward

1. India should undertake **long-term, multi-location field evaluation** before large-scale adoption.
2. Regulatory decisions should be based on **transparent and independently scrutinised scientific evidence**.
3. Biosafety assessment should examine unintended mutations, nutritional changes, allergens and ecological effects.
4. Farmers should receive adequate information, extension support and access to quality seeds.
5. Public research institutions should make relevant scientific evidence available for **wider peer and scientific scrutiny**.

6. Regulation should remain **risk-based and technology-neutral**, distinguishing gene editing from transgenic GM technology without compromising biosafety.

Conclusion: Gene-edited rice can become an important tool for making Indian agriculture **more productive, climate-resilient and resource-efficient**. However, its success should not be judged only by higher yields. A combination of **scientific transparency, rigorous biosafety assessment, multi-location testing, farmer participation and proportionate regulation** is essential for ensuring that genome editing delivers sustainable benefits to Indian agriculture.

Question: "Gene-edited rice represents a significant opportunity for India to improve agricultural productivity and climate resilience, but its commercialisation must be accompanied by robust scientific assessment and regulatory oversight." Discuss with reference to India's gene-edited rice varieties.

Source: Business Line

Centre's Fiscal Outlook Faces Geopolitical, Revenue Risks

UPSC Syllabus: Gs Paper 3- Indian economy
Introduction

The Centre's fiscal outlook for **2026–27** is under pressure from recent tax changes and the **West Asian crisis**. Slower tax growth, reduced fuel excise duties and higher subsidies could affect fiscal performance. However, strong **non-tax receipts**, including Reserve Bank of India dividends, along with new revenue measures and expenditure management, may help keep the fiscal deficit and debt broadly close to the budgeted levels.

Current Fiscal Situation of India

1. **Slow Gross Tax Revenue Growth:** The Centre's **Gross Tax Revenue (GTR)** grew by only **3.7%** in the first quarter of 2026–27.
2. **Weak Personal Income Tax Growth: Personal Income Tax (PIT)** grew by **6.8%**, after registering only **0.037% growth** and zero buoyancy in 2025–26.
3. **Contraction in GST Revenue: Goods and Services Tax (GST)** revenue contracted by **11%**, following a growth of **4.67%** during the second half of 2025–26.
4. **Impact of Tax Rationalisation:** Extensive PIT and GST rate rationalisation caused an initial revenue sacrifice, while future tax-base expansion is expected to offset losses.
5. **Decline in Union Excise Revenue:** Rising retail fuel prices led to excise duty cuts, causing **Union excise duty revenue** to contract by **22.4%**.
6. **Higher Subsidy Requirement:** Major subsidies increased by **37.4%** in the first quarter because unexpectedly high global crude oil prices raised expenditure needs.
7. **Strong Non-Tax Revenue Support:** Non-tax revenue contributed **37% of net revenue receipts**, providing significant support despite weak growth in major tax revenues.

8. **Fiscal Deficit and Debt Outlook:** Fiscal deficit is estimated at **₹18.16 lakh crore**, or **4.6% of GDP**, while the debt-to-GDP ratio is estimated at **55.8%** under the new GDP series.

Major Government Measures Supporting Fiscal Stability

1. **New Revenue Measures:** The government discontinued the **GST Compensation Cess** and introduced the **Health Security and National Security (HSNS) Cess** from **February 1, 2026**, increased windfall tax on petroleum exports from **August 3, 2026, and raised import duties on specified precious metals.**
2. **Reserve Bank of India Dividend:** The **Reserve Bank of India** transferred dividends in May 2026, covering **77% of budgeted dividends and profits** within three months.
3. **Expected Realisation of Other Receipts:** Budgeted **non-tax and non-debt capital receipts** are expected to be realised, strengthening the Centre's overall fiscal resources.
4. **Containing Revenue Expenditure:** Despite the rise in subsidies, revenue expenditure growth was contained at **7.4%**during the first quarter of 2026–27.
5. **Front-Loading Capital Expenditure:** Capital expenditure grew by **23.7%** in the first quarter, compared with a **23.3% contraction** in the previous quarter.

Key Challenges and Risks

A. Revenue and Fiscal Outlook Risks

1. **Continued Impact of Tax Changes:** The revenue-reducing effect of **Personal Income Tax (PIT)** and **Goods and Services Tax (GST)** rationalisation may continue until tax-base expansion improves collections.
2. **Possible Shortfall in Tax Revenue:** The estimated **Gross Tax Revenue (GTR)** may be realised or fall short by a small margin, depending on revenue performance.
3. **Lower Nominal GDP Level:** Nominal GDP is estimated at **₹391 lakh crore**, below the budgeted **₹393 lakh crore**, despite expected growth of **12.5–13%**.

B. Geopolitical and Expenditure Risks

1. **Prolonged West Asian Crisis:** Continuing geopolitical tensions may keep global crude oil prices high and volatile, while creating further supply-side uncertainties.
2. **Higher Annual Subsidy Burden:** If first-quarter trends continue, major subsidies may exceed the budgeted amount by around **₹50,000 crore** during 2026–27.
3. **Risk from Further Escalation:** A further escalation of the conflict could deliver a major shock to the economy and significantly worsen the Centre's fiscal position.

C. Centre–State Fiscal Risks

1. **Reduced Tax Devolution:** Tax devolution to States contracted by **19.5%** in the first quarter, although transfers are expected to increase later.

2. **Pressure on Shareable Resources:** The **Sixteenth Finance Commission** retained States' **41% share**, but the non-shareable HSNS Cess may marginally reduce the divisible pool.

3. **Lower Finance Commission Grants:** Finance Commission grants to States are budgeted to contract by **₹23,556 crore** during 2026–27.

D. Debt and Currency Risks

1. **Pressure from External Debt:** Sustained pressure on the Indian rupee may slightly increase external debt and add to the possibility of fiscal slippage.

2. **Risk of Higher Unbudgeted Spending:** Additional subsidies and other revenue expenditure beyond budget estimates could weaken the Centre's fiscal balance during the year.

Way Forward

1. **Restore Fuel Excise Duties:** The reduction in fuel excise duties should be restored at a suitable time to strengthen Union excise revenue.

2. **Support Tax-Base Expansion:** The expected expansion of the PIT and GST tax base needs to gradually compensate for the initial revenue sacrifice.

3. **Contain Additional Subsidies:** The Centre needs to manage rising subsidy requirements, especially if the West Asian crisis keeps crude oil prices elevated.

4. **Maintain Revenue Expenditure Control:** Revenue expenditure should remain contained to prevent additional subsidies from causing a larger deviation from budgeted fiscal outcomes.

5. **Continue Capital Expenditure:** The Centre should sustain front-loaded capital expenditure while managing other fiscal pressures and maintaining the overall expenditure balance.

6. **Keep Deficit and Debt Near Targets:** Strong non-tax receipts, revenue mobilisation and expenditure control will be necessary to limit possible fiscal slippage.

7. **Prepare for Geopolitical Shocks:** Fiscal planning must account for the possibility that a further escalation of the West Asian conflict could sharply worsen conditions.

Conclusion

The Centre's fiscal outlook for **2026–27** is expected to remain broadly on track despite pressure on tax revenues and higher subsidy requirements. Strong **non-tax receipts**, particularly RBI dividends, along with additional revenue measures, provide important fiscal support. However, a shortfall in tax revenues, sustained crude oil pressures and further escalation of the **West Asian crisis** could still cause fiscal slippage.

Question for the practice:

Discuss the major revenue and expenditure challenges facing the Centre's fiscal outlook in 2026–27 and examine the measures needed to maintain fiscal stability.

Source: The Hindu

The Vanashakti Verdict – Significance and Way Forward

UPSC Syllabus: Gs Paper 3- Indian economy and Infrastructure

Introduction

The Supreme Court's **29 July 2026 judgment in *Vanashakti v. Union of India*** clarifies the legal position on projects that commenced without obtaining prior **Environmental Clearance (EC)**. The key issue was whether such projects could be allowed to continue through post-facto approval. While reaffirming that prior EC remains the rule under the **Environment Impact Assessment (EIA) Notification, 2006**, the Court also recognised the scope for a limited statutory mechanism in exceptional cases involving larger public interest.

Legal Framework for Environmental Clearance

1. **Prior Environmental Clearance:** The Environment Impact Assessment (EIA) Notification, 2006requires specified projects to obtain Environmental Clearance before starting construction or operations.

2. **Purpose of Prior EC:** Screening, scoping, public consultation and appraisal assess environmental impacts before projects begin and before ecological damage becomes irreversible.

3. **Consequences of Violation:** Projects starting without prior EC may face restoration of the status quo, including closure, demolition where necessary, remediation and environmental cost recovery.

4. **2017 Violation-Management Scheme:** The **2017 Notification** created a one-time window for eligible violation projects to seek Environmental Clearance within six months.
5. **Environmental Safeguards:** The scheme required **environmental damage assessment, remediation measures and environmental compensation** before bringing violations into the regulatory framework.
6. **2021 Continuing Administrative Mechanism:** The **2021 Office Memorandum** created a continuing administrative mechanism for processing **post-facto Environmental Clearance applications** in violation cases.
7. **The Core Legal Question:** These mechanisms raised the question of whether existing violations could be addressed without weakening the mandatory requirement of prior **Environmental Clearance (EC)**.

Judicial Position on Post-Facto Environmental Clearance

1. ***Common Cause v. Union of India* (2017):** The Supreme Court held that post-facto Environmental Clearance was generally alien to environmental jurisprudence, but allowed mining operations to resume after obtaining EC and paying compensation.

2. ***Alembic Pharmaceuticals v. Rohit Prajapati* (2020):** The Court struck down an executive circular permitting post-facto EC but retained existing clearances and imposed environmental compensation under Article 142.

3. ***Vanashakti v. Union of India* (16 May 2025):** A two-judge Bench struck down both the 2017 Notification and the 2021 Office Memorandum, holding that projects without prior **Environmental Clearance (EC)** could not claim regularisation.

4. **Present Supreme Court Judgment (29 July 2026):** After the 2025 judgment was recalled on review, a three-judge Bench reconsidered the issue and settled the legal position on post-facto Environmental Clearance.

5. **Need to Reconcile Earlier Decisions:** The three-judge Bench examined earlier rulings to balance the mandatory requirement of prior EC with the principle of proportionality in granting relief.

The 2026 *Vanashakti* Verdict

1. **Prior EC Remains the Rule:** Projects commencing construction or operations without EC cannot ordinarily be retained through post-facto approval under the EIA Notification, 2006.

2. **Penalty Does Not Mean Regularisation:** Payment of penalties for environmental violations does not alter the EIA framework or automatically legalise projects operating without prior **Environmental Clearance (EC)**.

3. **2017 Notification Upheld:** The Court upheld it as a valid, one-time statutory mechanism for a closed class of violations, supported by environmental damage assessment, remediation and compensation.

4. **2021 Office Memorandum Quashed:** The Court struck it down because an administrative instruction cannot alter the statutory EC framework or create a continuing mechanism for post-facto approval.

5. **Limited Statutory Exception Allowed:** Section 3 of the Environment (Protection) Act, 1986permits a narrowly tailored and time-bound statutory regime for exceptional cases in larger public interest.

6. **Safeguards for Future Mechanisms:** Any such regime must satisfy proportionality, preserve the precautionary principle and ensure environmental restoration, remediation and accountability.

7. **Existing Clearances Protected: ECs** already granted under the earlier mechanisms remain valid unless challenged on grounds independent of the validity of those mechanisms.

8. **Pending Cases and Fresh Applications:** Pending applications will be decided under the judgment's principles, while no fresh applications can be entertained under the 2017 Notification or 2021 Office Memorandum.

Significance of the *Vanashakti* Verdict

1. **Strengthens the Precautionary Principle:** The judgment reinforces the requirement that environmental consequences should normally be assessed before project activities begin.

2. **Clarifies the Limits of Executive Power:** It establishes that an administrative Office Memorandum cannot create substantive rights or alter the statutory environmental framework.

3. **Discourages Deliberate Violations:** Closing the continuing regularisation route reduces incentives for project proponents to begin activities without mandatory environmental approval.

4. **Reconciles Earlier Judicial Positions:** The judgment resolves the apparent conflict between earlier decisions by retaining prior EC as the rule while allowing limited statutory exceptions.

5. **Recognises the Problem of Legacy Violations:** Projects that missed earlier violation windows now lack the old regulatory route, creating a need for a lawful solution where public interest requires it.

6. **Applies Eco-Centric Proportionality:** The Court balances environmental protection with developmental and public interest needs without diluting the basic requirement of prior EC.

7. **Avoids Greater Environmental Harm:** The Court recognised that demolishing or closing completed, otherwise permissible projects may sometimes cause more environmental harm.

Way Forward

1. **One-Time Statutory Framework:** Any future mechanism should be created through a valid statutory notification and remain strictly limited to specified exceptional violation cases.

2. **Clearly Defined Eligibility:** The framework should identify the categories of legacy projects eligible for consideration and prevent new violations from entering the scheme.

3. **Environmental Damage Assessment:** Each eligible project should undergo proper assessment to determine the nature and extent of environmental harm already caused.

4. **Remediation and Restoration:** Projects should implement necessary measures to repair environmental damage and restore affected areas wherever possible.

5. **Environmental Compensation:** Violation projects should bear the financial cost of environmental damage and remain accountable for their non-compliance.

6. **Strict Compliance Conditions:** Any project allowed to continue must comply with environmental safeguards and conditions imposed under the statutory framework.

7. **No Permanent Regularisation Route:** The mechanism must not create an expectation that projects can violate environmental law and later obtain routine approval.

8. **Proportionate Decision-Making:** Decisions should consider environmental protection, restoration, public interest and the consequences of closure in individual exceptional cases.

Conclusion

The **Vanashakti verdict** firmly establishes **prior Environmental Clearance as the rule** and rejects permanent administrative regularisation of violations. At the same time, it leaves room for a **narrow and time-bound statutory solution** for exceptional legacy cases. The way forward lies in combining **strict compliance, environmental restoration, accountability and proportionate decision-making** to protect both environmental integrity and legitimate public interests.

Question for practice:

Examine the significance of the *Vanashakti* verdict in strengthening environmental governance while balancing the need for development and addressing legacy environmental violations.
Source: The Hindu

Ensuring equity amid India's educational progress

Source: The post **"Ensuring equity amid India's educational progress"** has been created based on **"Ensuring equity amid India's educational progress"** published in **"The Hindu"** on 22nd August 2026.

UPSC Syllabus: GS 2- GovernanceContext: The **UDISE+ 2025-26 report** covers around **14.7 lakh schools, 24 crore students and 1.02 crore teachers**. It shows improvement in enrolment, retention, dropout reduction, teacher availability and infrastructure. However, **regional, social and economic disparities** continue to affect access, quality and learning outcomes.

Major disparities highlighted by UDISE+

1. **Regional disparities:** Gross Enrolment Ratio (GER), dropout rates, pupil-teacher ratio (PTR) and infrastructure availability vary significantly across States and Union Territories.
2. **Social disparities:** At the national level, GER is highest for **OBCs (49%)**, followed by General category (27%), SCs (17%) and STs (10%), indicating differences in enrolment relative to the population of each group.
3. **Gender:** The Gender Parity Index shows that **girls' enrolment and participation are higher than boys in most States/UTs**, indicating progress in girls' education.
4. **Aadhaar seeding:** Andhra Pradesh has the highest Aadhaar seeding at **99.6%**, while Meghalaya has the lowest at **35%**, against the national average of **90.2%**.
5. **Unequal school structure:** West Bengal has a high proportion of foundational and preparatory schools, while Chandigarh has a very high share of secondary schools. This reflects differences in the availability and structure of schools across regions.
6. **School size:** Average enrolment per school is very high in **Chandigarh (1,194)** and Delhi (788), while it is very low in **Ladakh (64)**, showing substantial regional differences in school size.

Regional differences in GER

1. **Foundational stage:** Meghalaya records the highest GER at **131**, while Bihar records the lowest at **24**.
2. **Preparatory stage:** Meghalaya has the highest GER at **171**, while Gujarat has the lowest at **74**.
3. **Middle stage:** Chandigarh and Meghalaya record the highest GER at **118**, while Bihar records the lowest at **70**.
4. **Secondary stage:** Chandigarh records the highest GER at **109**, while Bihar has the lowest at **48**.

5. These variations show that **access and continuation in education remain uneven across India**.

Teacher-related challenges

1. The **pupil-teacher ratio (PTR)** varies significantly between States and across educational stages.
2. **Jharkhand has the highest secondary PTR at 43**, followed by Uttar Pradesh, indicating a heavy workload on teachers.
3. In contrast, **Sikkim has a secondary PTR of only 6**, followed by Ladakh.
4. Rural and remote schools often face teacher shortages, with teachers handling **multiple classes, subjects and non-teaching duties**.
5. High PTR reduces individual attention and can adversely affect learning outcomes.

Dropout and transition challenges

1. **Bihar** has the highest preparatory-stage dropout rate at **7.9%** and the highest middle-stage dropout rate at **9%**.
2. **Ladakh** has the highest secondary-stage dropout rate at **14.8%**, followed by Karnataka.
3. West Bengal has a low secondary dropout rate of **1.5%**.
4. High dropout rates affect **educational attainment and transition to higher stages of schooling**.
5. Although girls' participation has improved, challenges remain in reducing dropout and ensuring transition from **primary to secondary education**.

Infrastructure and accessibility gaps

1. Access to drinking water and electricity has improved, but infrastructure remains uneven across regions.
2. **Rural, hilly, tribal, remote and border areas** continue to face shortages of schools and transport facilities.
3. Districts such as **Bageshwar, Ganjam, Kandhamal, Kathua and Palghar** face accessibility challenges.
4. Children from **SC, ST, minority and economically weaker families** face greater barriers to enrolment, attendance and completion.
5. Educationally backward districts continue to face weaker learning environments compared with urban areas.

Inclusion challenges

1. Children with disabilities continue to face inadequate access to **suitable facilities, accessible classrooms and inclusive infrastructure**.
2. Inclusive education requires not only physical accessibility but also **supportive teaching practices**.
3. Social and economic disadvantages can reinforce educational inequalities among vulnerable groups.

Way forward

1. **Targeted investment** should be directed towards educationally deprived and remote regions.
2. Teacher deployment should be made more **equitable**, with special attention to rural, tribal, hilly and border areas.
3. Teacher shortages should be reduced and teachers should be protected from excessive **non-teaching responsibilities**.
4. Schools should receive adequate **digital infrastructure and learning resources**.

5. Transport and school infrastructure should be strengthened in remote areas.
6. Special support should be provided to **SCs, STs, minorities, economically weaker families and children with disabilities**.
7. Measures to reduce dropout and improve transition to secondary education should be strengthened.
8. In line with **NEP 2020**, education policy should focus simultaneously on **access, equity, inclusion and quality**.

Conclusion: India has made substantial progress in expanding school education, particularly in enrolment, girls' participation, infrastructure and teacher availability. However, the UDISE+ data show that **progress has not been uniform**. A combination of targeted investment, equitable teacher deployment, inclusive infrastructure, digital access and support for disadvantaged groups is necessary to ensure that educational progress translates into **equal learning opportunities for every child**.

Question: The UDISE+ 2025-26 data indicate significant progress in India's school education system, but also reveal persistent regional and social inequalities. Discuss the major challenges to equitable and inclusive school education in India and suggest measures to address them.

Source: The Hindu

Crop Cutting Experiments and the Reliability of India's Agricultural Data

Source: The post **"Crop Cutting Experiments and the Reliability of India's Agricultural Data"** has been created based on **"Crop Cutting Experiments and the Reliability of India's Agricultural Data"** published in **"Down To Earth"** on 22nd August 2026.

UPSC Syllabus: GS 3 Science and technology

Context: India's official crop production estimates are mainly based on **crop area and average yield per hectare**. The average yield is estimated through **Crop Cutting Experiments (CCEs)**, making their accuracy important for agricultural policy, food security and farmers' welfare.

About Crop Cutting Experiments (CCEs)

1. CCEs involve harvesting, threshing, cleaning and weighing the crop from a **scientifically selected small plot within a field**.
2. The yield obtained from this sample is used to estimate **yield per hectare**.
3. The estimated yield, along with the total area under the crop, is used to calculate crop production at the **district, state and national levels**.
4. The system has expanded significantly, from about **1.73 lakh CCEs in 1973-74 to over 11.62 lakh in 2023-24**.
5. State Agricultural Statistics Authorities conduct the CCEs, while the **Field Operations Division of MoSPI** provides technical guidance and monitors compliance with scientific procedures.

Importance of CCEs

1. CCE-based production estimates guide the **procurement strategy** of the Food Corporation of India and state agencies.
2. They help determine the scale of **Minimum Support Price (MSP) procurement**.

3. They are used to assess foodgrain availability for the **Public Distribution System (PDS)**.
4. They influence decisions on **agricultural exports and imports** and national food-security planning.
5. In several states, these estimates are also used for **crop insurance claims** and assessment of agricultural performance.

Key findings of the NSO report, 2023-24

1. Only **72% of CCEs** were conducted according to the prescribed scientific procedure, while **28% had procedural lapses, rule violations or other errors**.
2. About **11% of CCEs** had procedural errors, including incorrect plot selection and improper harvesting or weighing.
3. Around **10%** had errors in recording important ancillary information such as **irrigation, seed variety and fertiliser use**, which can affect subsequent analysis.
4. **Sample replacement was widespread.** Selected villages or fields had to be changed in most states because the required crop was unavailable. This affected states such as Andhra Pradesh, Assam, Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttarakhand and Puducherry.
5. The report identified **outdated GCES plans, delayed field selection and inadequate coordination with farmers** as major reasons for sample replacement.
6. **Supervision was inadequate.** National supervision rates were only **85% in Pre-Kharif, 81% in Kharif, 80% in Rabi and 88% in summer**, meaning that around one in five CCEs was not effectively supervised on average.
7. Several states recorded supervision rates below **80%**, particularly during different crop seasons, including Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal.
8. The report also highlighted the problem of **untrained personnel** conducting CCEs. This was particularly serious in **Jharkhand (41%) and Uttar Pradesh (40%)**, with concerns also reported in Jammu & Kashmir, Madhya Pradesh, Maharashtra and West Bengal.
9. In Rajasthan, CCE responsibilities were frequently **delegated to personnel other than those originally assigned**, raising concerns about adherence to prescribed procedures.
10. The report stresses that CCEs require accurate **field selection, plot demarcation, harvesting, threshing, cleaning, weighing and data recording**. Errors at any stage can affect yield estimates.

Way forward

1. States should aim for **100% supervision** of CCEs, as recommended by the report.
2. The **GCES plan should be regularly updated** and fields should be selected on time.
3. Better coordination with farmers can reduce unnecessary replacement of selected villages and fields.
4. Only **properly trained personnel** should conduct CCEs.
5. Stronger monitoring and adherence to scientific sampling procedures are necessary to improve the credibility of agricultural statistics.

Conclusion: CCE data form the **foundation of India's official crop production estimates**. The NSO findings, particularly the **28% procedural lapse rate, inadequate supervision, sample replacement and use of untrained personnel**, raise concerns about the reliability of these estimates. Strengthening the scientific integrity, training and supervision of CCEs is therefore essential for evidence-based agricultural policy and food-security planning.

Question: What are Crop Cutting Experiments (CCEs)? Discuss their importance in estimating India's agricultural production and examine the key findings of the NSO report on the quality of CCEs.
Source: Down To Earth

Unimpeded Trade Needs IPMDA as the Answer

UPSC Syllabus: Gs Paper 2- International Relations
Introduction
Despite difficulties in India-U.S. relations, both sides need cooperation on trade, energy and **Maritime Domain Awareness (MDA)** to protect unimpeded trade. The West Asia crisis has shown that disruptions in major sea routes can affect energy supplies and global commerce. As maritime coercion, illegal activities and surveillance gaps grow, the **Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)** offers a practical framework for improving maritime transparency and regional cooperation.
Importance of the Indo-Pacific for Global Trade

1. **A major global trade corridor:** The Indo-Pacific carries nearly **$7 trillion in trade annually**, linking Persian Gulf energy producers with East Asian manufacturing centres and consumer markets across the Americas.

2. **Critical maritime choke points:** The region includes the **Malacca, Lombok and Sunda Straits, Strait of Hormuz, Bab-al-Mandeb and Mozambique Channel**, which are crucial for energy and container supplies.

3. **West Asia crisis and trade disruption:** The energy crisis arising from the war in West Asia has shown how instability can disrupt maritime routes and affect economies beyond the region.

4. **Freedom of navigation and supply chains:** Global supply chains depend on open sea routes, but freedom of navigation is increasingly contested by coercive and disruptive activities.

5. **Limits of unilateral protection:** Geographic scale, different jurisdictions and institutional gaps make it difficult for even the United States to monitor and secure these vast waters alone.

Growing Maritime Surveillance Deficit and Threats

1. **Meaning of Maritime Domain Awareness:** MDA provides a shared understanding of maritime activities and their effects on **security, safety, the economy and the marine environment**.

2. **Dark shipping:** Hundreds of vessels disable their **Automatic Identification System (AIS)** transponders to evade sanctions, conceal cargo, or avoid detection during suspicious activities.

3. **Smuggling and covert transfers:** Vessels operating without AIS signals may engage in smuggling or **ship-to-ship transfers of contraband**, creating security and safety risks.

4. **Illegal fishing:** Smaller vessels outside mandatory AIS requirements may engage in illegal fishing, depleting regional fish stocks and threatening the food security of littoral states.

5. **Grey-zone coercion:** State-affiliated and non-state actors increasingly use intimidation and coercion while remaining below the threshold of conventional military or legal responses.

6. **A widening surveillance gap:** The Indian Ocean, South China Sea and Western Pacific remain difficult to monitor continuously, creating gaps that illegal and coercive actors can exploit.

7. **No country can monitor alone:** The scale of the Indo-Pacific requires cooperation because no single country possesses the capacity to maintain complete maritime surveillance across the region.

The Quad's Response to the Maritime Challenge

1. **Launch of IPMDA:** The **Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)** was announced on **24 May 2022** at the Quad Leaders' Summit in Tokyo.

2. **A practical Quad initiative:** IPMDA is a flagship Quad mechanism that improves maritime awareness without creating a new treaty or imposing binding obligations.

3. **Focus on data fusion:** It combines commercial satellite-based radio-frequency monitoring, synthetic-aperture radar and AIS data to identify activities that individual data sources may miss.

4. **Detection of dark vessels:** By comparing radio-frequency and radar signals with missing AIS transmissions, IPMDA can identify suspicious vessels attempting to avoid detection.

5. **Use of existing information hubs:** Maritime information is shared through regional centres, allowing partner states to receive data without creating a new Quad-owned surveillance facility.

6. **Regional information-sharing centres:** IPMDA shares maritime data through three existing centres—the **Information Fusion Centre–Indian Ocean Region (IFC-IOR) in Gurugram, India; the Information Fusion Centre in Singapore; and the Pacific Islands Forum Fisheries Agency (FFA) in Honiara, Solomon Islands**.

7. **Accessible and unclassified information:** Commercial and unclassified data allow non-Quad countries to participate without depending on classified military intelligence from any single power.

8. **Expansion and capacity building:** IPMDA has expanded its regional reach through wider data-sharing, while the **Maritime Initiative for Training in the Indo-Pacific (MAITRI)** helps partner countries use maritime data and strengthen their capacity to police their waters.

India-U.S. Cooperation and Benefits for Regional Partners

1. **Strategic importance of India-U.S. cooperation:** Stronger cooperation is necessary for full IPMDA operationalisation, especially as the United States seeks regional support for wider maritime responsibilities.

2. **SeaVision technology cooperation:** In **2025**, India purchased SeaVision technology from the United States, including software improvements, training and logistical support for MDA cooperation.

3. **India's institutional advantage:** The **Information Fusion Centre–Indian Ocean Region (IFC-IOR)**, established in Gurugram in **2018**, complements IPMDA's regional information-sharing architecture.

4. **Respecting sovereignty while expanding reach:** IPMDA allows India to strengthen its maritime reach through shared information without compromising its sovereignty or creating binding commitments.

5. **Reducing the burden on the United States:** Regional cooperation in the Indian Ocean can help the United States focus greater attention on its immediate strategic priorities in the Pacific and Atlantic.

6. **Support for capacity-constrained states:** Countries such as **Bangladesh, Maldives, Seychelles, Sri Lanka and Fiji** can gain better maritime visibility beyond the limits of their existing surveillance systems.

Way Forward

1. **Convert information into enforcement:** Detecting a suspicious vessel is insufficient unless coastal states also have the capacity and resources to intercept or prosecute it.
2. **Strengthen training and operational capacity: MAITRI and parallel coast-guard cooperation** should help partners use maritime information and strengthen their ability to police their waters.
3. **Ensure sustained access to data:** Commercial satellite data and subscriptions require continuous funding, particularly for small island states dependent on external financial support.
4. **Address data reliability and legal issues:** Questions regarding accuracy, attribution and the legal value of fused data must be addressed when countries use it for interdiction or prosecution.
5. **Expand regional participation:** IPMDA should involve **ASEAN partner states, Pacific Island nations and other willing partners** to strengthen maritime surveillance across critical regional corridors.
6. **Strengthen information-sharing architecture:** Existing regional information-sharing centres should effectively integrate and share maritime data to create a layered and near-continuous picture of maritime activities.
7. **Encourage European Union engagement:** The **United States and India** should cultivate the European Union's interest in free and open trade to expand support for IPMDA.
8. **Present IPMDA as a regional public good:** Its focus on fisheries protection and humanitarian response can encourage participation from states concerned about bloc politics.
9. **Use transparency as deterrence:** Better maritime visibility can deter covert and coercive activities by making them more difficult to conceal.

Conclusion

IPMDA provides a practical answer to the growing gap between the need for open maritime trade and limited surveillance capacity. Stronger India-U.S. cooperation, wider regional participation, sustained data access and improved enforcement capacity can make it more effective. In an increasingly contested Indo-Pacific, **maritime transparency can support deterrence, protect freedom of navigation and help secure unimpeded global trade.**

Question for practice:

Discuss the role of the Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA) in ensuring unimpeded trade and strengthening maritime security in the Indo-Pacific.

Source: The Hindu

Tribunal Reform 2026: Old Wine in a New Bottle

UPSC Syllabus: Gs Paper 2- Statutory, regulatory and various quasi-judicial bodies.

Introduction

The **Tribunals Reforms Act, 2026** repeals and replaces the 2021 framework with the **National Tribunals Commission (NTC)**, a five-year tenure and revised selection rules. However, the same basic structure largely continues, including the **16 tribunals** and an important role for the Central Government. The key question is whether these changes ensure genuine **tribunal independence** or mainly repair the constitutional defects of the 2021 framework.

Tribunals in India: Meaning, Constitutional Basis and Evolution

1. **Specialised adjudicatory institutions:** Tribunals are judicial or quasi-judicial bodies established by law to decide specialised disputes requiring faster resolution and subject-specific expertise.

2. **Alternative to traditional courts:** They were developed to reduce the burden on regular courts and provide specialised adjudication in technical and sector-specific matters.

3. **Constitutional basis under the 42nd Amendment:** Articles 323A and 323B were inserted in 1976, providing the constitutional basis for establishing tribunals.

4. **Article 323A and administrative tribunals:** It empowers Parliament to establish administrative tribunals (both at central and state level) for disputes related to recruitment and service conditions of public servants.

5. **Article 323B and tribunals on specified subjects:** It allows Parliament and State Legislatures to establish tribunals on subjects such as taxation and land reforms through legislation.

6. **Tribunal powers are not limited to listed subjects:** The Supreme Court clarified in 2010 that legislatures may establish tribunals on subjects within their legislative powers under the Seventh Schedule.

7. **A long institutional evolution:** The Income Tax Appellate Tribunal, established in 1941, was an early example, followed by administrative and sector-specific tribunals after 1976.

8. **Tribunals may function at different levels of the judicial system:** Some tribunals act as substitutes for High Courts, with appeals going directly to the Supreme Court, while others remain subordinate to High Courts, where appeals lie before the corresponding High Court.

Tribunal Reforms in India

1. **Tribunal rationalisation began before 2021:** The reform process started with the Finance Act, 2017, which abolished or merged tribunals and reduced their number from 26 to 19.

2. **Centralised service rules were introduced:** The 2017 framework empowered the Central Government to prescribe qualifications, selection, tenure and other service conditions for remaining tribunals.

3. **Judicial intervention shaped tribunal reforms:** In **Rojer Mathew**, the Supreme Court recommended an **independent National Tribunals Commission (NTC)**, while the **Madras Bar Association** cases stressed **judicial independence and limits on Executive control**.

4. **The NTC was envisaged as an independent oversight body:** The Supreme Court proposed **an independent National Tribunals Commission to oversee appointments, service conditions, infrastructure and tribunal functioning.**

5. **The Tribunals Reforms Act, 2021 continued rationalisation:** It abolished five more tribunals and created a common framework for qualifications, appointments, tenure, salaries, removal and service conditions.

6. **The 2021 framework created fresh constitutional disputes:** It imposed a minimum age of 50 years, a four-year tenure, and a two-name recommendation process for appointments.

Why Was a New Tribunal Reform Framework Needed?

1. **The 2021 framework failed constitutional scrutiny:** In Madras Bar Association v. Union of India, the Supreme Court struck down provisions that affected judicial independence and separation of powers.

2. **The age restriction had to be reconsidered:** The bar on appointing persons below 50 years was among the provisions rejected under the earlier framework.

3. **The four-year tenure was constitutionally questioned:** A short tenure raised concerns about institutional continuity and the independence of tribunal members.

4. **The two-name recommendation system faced criticism:** Allowing the Executive to choose from two recommended names raised concerns about excessive executive influence in appointments.

5. **The Supreme Court sought an independent institutional mechanism:** The Court directed the Union Government to establish an NTC with independence, expertise, transparency and proper oversight.

6. **The 2026 framework responded to these judicial concerns:** Its purpose was to replace the constitutionally defective parts of the 2021 system with a revised institutional arrangement.

What Is New in the Tribunals Reforms Act, 2026?

1. **National Tribunals Commission (NTC):** The NTC will handle selections, performance review, complaint inquiries and the National Tribunals Data Grid.

2. **Judicial and technical composition:** It will have a chairperson, **two judicial members and two technical members**.

3. **Five-year tenure:** The tenure of tribunal chairpersons and members has increased from **four years to five years**.

4. **Removal of minimum age:** The earlier **minimum age requirement of 50 years** has been removed.

5. **Revised selection process:** Search-cum-Selection Committees continue, but the earlier **two-name panel has been replaced by one recommended candidate**.

Major Concerns with the Tribunals Reforms Act, 2026

1. **Executive role in appointments:** The Central Government remains the final appointing authority, retaining an important role despite stronger judicial participation in the selection process.

2. **Uncertainty over recommendations:** Although the Act sets a **three-month deadline**, it does not clearly state what happens if the Government delays, rejects or seeks another candidate.

3. **Judicial primacy:** The **two-name panel** has been replaced by one recommended candidate and judicial participation has increased, but final appointment power remains with the Executive.

4. **Limited institutional continuity:** The **five-year tenure** may still lead to the loss of specialised knowledge, procedural experience and institutional memory when experienced members leave.

5. **NCLT–NCLAT inconsistency:** The National Company Law Appellate Tribunal (NCLAT) is covered under the new framework, while NCLT remains excluded despite being its original adjudicatory body, creating an unexplained gap in uniform tribunal governance.

Reform or Repair? What Remains from the 2021 Framework?

1. **Same tribunal structure:** The First Schedule again covers **16 tribunals and authorities**, showing that the overall institutional structure remains largely unchanged.

2. **Common framework:** Qualifications, selection, appointments, salaries, removal and service conditions continue to be governed through a common legislative framework.

3. **Selection mechanism: Search-cum-Selection Committees** remain part of the system, although their composition and recommendation process have changed.

4. **Executive presence:** The Central Government continues to hold an important position in the appointment structure despite stronger judicial participation.

5. **Centralised framework:** Parent statutes are again aligned with the new law, allowing a common framework to govern covered tribunals.

6. **Correction, not redesign:** The 2026 Act addresses concerns over **tenure, minimum age and selection**, but retains much of the 2021 legislative architecture.

7. **Uniformity and independence:** A common framework may improve administrative uniformity, but tribunals still require institutional safeguards because they exercise judicial power.

8. **Real test:** The reform's success will depend on whether the **National Tribunals Commission** actually reduces executive influence and strengthens tribunal independence.

Way Forward: Towards Genuine Tribunal Reform

1. **Independent NTC:** The **National Tribunals Commission (NTC)** must function independently and protect tribunal appointments and administration from excessive Executive influence.

2. **Timely Appointments:** Appointment timelines should ensure actual appointments and prevent avoidable delays after candidates are recommended.

3. **Judicial Primacy:** The selection process should maintain judicial primacy to protect adjudicatory neutrality and institutional independence.

4. **Administrative Independence:** Reforms should address vacancies, infrastructure, funding and dependence on parent ministries, which affect effective and independent functioning.

5. **Data-Based Oversight:** The **National Tribunals Data Grid** should track vacancies, pendency, disposal, case age and other indicators of institutional performance.

6. **Broader Evaluation:** Performance review should consider judicial quality, case complexity, appellate reversals, vacancies and administrative support, not only disposal numbers.

7. **Coverage Gaps:** The exclusion of **National Company Law Tribunal (NCLT)** and **Goods and Services Tax Appellate Tribunal (GSTAT)** requires a clear explanation or correction if no substantive reason exists.

Conclusion

The **Tribunals Reforms Act, 2026** makes meaningful corrections through the **NTC, five-year tenure and revised selection rules**, but much of the 2021 structure survives. Its success will depend on whether appointments, administration and resources become genuinely independent of excessive executive influence. Tribunal reform will be complete only when tribunals can function independently and decide against the government when required by law.

Question for practice:

Examine whether the Tribunals Reforms Act, 2026, represents a genuine reform of India's tribunal system or merely a correction of the 2021 framework.

Source: Businessline