

9 PM Current Affairs Weekly Compilation

For UPSC CSE mains examination



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Features :

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

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What is regenerative agriculture and why does India need it?

Source: The post "What is regenerative agriculture and why does India need it?" has been created based on "What is regenerative agriculture and why does India need it?" published in "Indian Express" on 6th July 2026.

UPSC Syllabus: GS-3-Economy

Context: **Regenerative agriculture** is a holistic approach to farming that focuses on restoring **soil health, biodiversity and natural farming systems** while maintaining agricultural productivity. Unlike conventional sustainability approaches that mainly seek to maintain existing conditions, regenerative agriculture aims to **improve the condition of land over time**.

Key Principles

1. It seeks to **minimise soil disturbance** and maintain soil cover.
2. It promotes **living roots of perennial crops** and greater biodiversity.
3. It encourages **integration of livestock with farming**.
4. It aims to **reduce dependence on chemical inputs** and restore natural **soil processes**.

Major Practices

1. **Micro-irrigation:** Drip and sprinkler systems improve water-use efficiency and reduce wastage.
2. **Natural farming:** It uses biological inputs such as Beejamrut, Jeevamrut, GhanJeevamrut, Neemastra and Dashparni, along with mulching, cover cropping, multi-cropping and livestock integration.
3. **Soil health management:** Green manuring, cover crops and mulching increase organic matter, conserve moisture and reduce soil erosion.
4. **Integrated Farming Systems:** Combining crops with livestock, fisheries, horticulture, agroforestry and apiculture diversifies livelihoods and reduces the risk of crop failure.
5. **Agroforestry:** Integrating trees with crops can provide additional income, improve soil moisture, regulate local temperatures and store carbon.

Why India Needs Regenerative Agriculture

1. India's agriculture and allied sectors recorded **4.45% decadal growth during FY16-FY25**, but sustaining this growth requires healthy soils, adequate water and resilient farming systems.
2. Intensive cultivation and heavy chemical use can put pressure on **soil health and farm productivity**.
3. Erratic rainfall, heatwaves, dry spells and excessive rainfall increase risks, particularly for **small and marginal farmers**.
4. Regenerative agriculture can make farming more **resource-efficient and resilient** to climate and market uncertainties.

Benefits for Farmers and Environment

1. It can improve **soil fertility, soil structure and water retention**.
2. Better soil cover can reduce **erosion and runoff**.
3. Greater biodiversity can support **pollinators, beneficial insects and soil microorganisms**.
4. Reduced dependence on synthetic fertilisers, pesticides and irrigation can help **lower input costs**.
5. Improved soil and farming systems can enhance **climate resilience and carbon storage**.
6. Diversified farming can provide **additional livelihood opportunities** and reduce the risk of crop failure.

Government Initiatives

1. **National Mission on Natural Farming:** Launched in 2024, it provides an output-based incentive of **₹4,000 per acre per year for two years**, covering up to one acre per farmer. By March 5, 2026, **18,786 natural farming clusters** had been formed, covering **8.80 lakh hectares** and enrolling **18.19 lakh farmers**.
2. **Per Drop More Crop:** It promotes drip and sprinkler irrigation. By May 2026, it had covered about **109 lakh hectares**, with **₹26,325 crore** released as central assistance.

3. **Rainfed Area Development Programme:** It promotes integrated farming systems. It covered **9.53 lakh hectares** and benefited **15.73 lakh farmers**, with **₹2,251.98 crore** provided as central assistance to states as of December 2025.
4. **Soil Health Card Scheme:** Launched in 2015, it provides plot-wise soil test reports and crop-specific recommendations. By March 13, 2026, **25.89 crore Soil Health Cards** had been generated.

Challenges

1. **Soil degradation:** Intensive cultivation and heavy chemical use can negatively affect soil health.
2. **Water stress:** Erratic rainfall and increasing climate-related stresses make water management difficult.
3. **Climate vulnerability:** Heatwaves, dry spells and excessive rainfall can affect farm productivity.
4. **Small farmer vulnerability:** Small and marginal farmers face greater risks from climate variability and crop failure.
5. **Dependence on external inputs:** Reducing dependence on synthetic fertilisers and pesticides requires greater adoption of natural and biological alternatives.
6. **Market uncertainty:** Farmers also face risks from market fluctuations, making diversified and resilient farming systems important.

Way Forward

1. **Promote natural farming:** Expand practices such as biological inputs, mulching, cover cropping and multi-cropping.
2. **Improve water-use efficiency:** Greater adoption of drip and sprinkler irrigation can reduce water wastage.
3. **Strengthen soil health:** Promote green manuring, cover cropping and mulching to improve organic matter and moisture retention.
4. **Encourage diversification:** Integrate crops with livestock, fisheries, horticulture, agroforestry and apiculture to reduce dependence on a single activity.
5. **Expand agroforestry:** Integrating trees with crops can provide additional income while improving soil moisture and storing carbon.
6. **Strengthen scientific soil management:** Soil Health Cards can help farmers understand soil conditions and adopt crop-specific recommendations.
7. **Scale up government support:** Existing initiatives such as the **National Mission on Natural Farming, Per Drop More Crop, Rainfed Area Development Programme and Soil Health Card Scheme** should continue supporting regenerative practices.

Conclusion: Regenerative agriculture shifts the focus from **short-term production to long-term productivity of land**. For India, it offers a pathway towards **healthier soils, efficient water use, greater biodiversity, climate-resilient farms and more secure farmer livelihoods**.

Question: What is regenerative agriculture? Discuss its key principles, major practices and significance for India's agricultural sustainability and climate resilience. Also highlight the government initiatives supporting it.

Source: DD News

Floating Solar: India's Next Renewable Energy Success Story?

Source: The post "Floating Solar: India's Next Renewable Energy Success Story?" has been created based on "Floating Solar: India's Next Renewable Energy Success Story?" published in "Indian Express" on 6th July 2026.

UPSC Syllabus: GS-3-Economy

Context: India's rapid growth in solar capacity is facing land constraints due to competing demands from agriculture, urbanisation and conservation. In this context, floating solar offers a land-saving alternative, and the PM Surya Sarovar Yojana aims to accelerate its large-scale adoption across India.

About Floating solar

1. It refers to solar panels mounted on floating platforms placed on water bodies such as **reservoirs, lakes and industrial ponds**.
2. The platforms are anchored to the reservoir bed or banks, and the electricity generated is transmitted to the shore through cables.
3. With increasing land constraints for solar projects, floating solar can help India expand renewable **energy capacity without requiring additional land**.

Significance for India

1. **Land conservation:** It avoids competition for land with agriculture, urbanisation and ecological conservation.
2. **Large potential:** India's floating solar potential is estimated at **102 GW**, considering only 20% usage of reservoir areas, while current installed capacity is only about **700 MW**.
3. **Water conservation:** Solar panels can reduce evaporation from covered portions of water bodies, although the extent depends on local conditions and reservoir characteristics.
4. **Higher efficiency:** Water beneath the panels helps keep them cooler, improving their performance, particularly during hot summers.
5. **Clean energy:** It provides an additional source of renewable electricity and can complement ground-mounted and rooftop solar.
6. **Existing experience:** The **100 MW Ramagundam project** in Telangana and **92 MW Kayamkulam project** in Kerala were commissioned in 2022. The planned **600 MW Omkareshwar Floating Solar Park** in Madhya Pradesh is another major project.

About PM Surya Sarovar Yojana (PM-SSY)

1. PM-SSY is the **first dedicated national initiative** aimed at scaling up floating solar in India.
2. It targets **5,000 MW of floating solar capacity** with a total outlay of **₹5,070 crore**.
3. It also supports co-located energy storage with a minimum storage capacity of **2 hours**, amounting to **10,000 MWh** of cumulative storage capacity.
4. It provides **₹1 crore per MW** as central financial assistance for eligible projects upon commissioning.
5. Up to **₹0.5 crore per project** is available for feasibility and preparatory activities such as hydrographic and environmental assessments.
6. The scheme can also promote **domestic manufacturing and employment** across the floating solar value chain.

Challenges

1. **High costs:** Floating solar is more expensive than ground-mounted solar due to floating platforms, anchoring systems, specialised equipment and installation costs.
2. **Storage costs:** Addition of energy storage systems can further increase capital requirements.
3. **Climate risks:** Strong winds, waves and changing water levels require climate-resilient designs.

4. **Ecological concerns:** Poorly planned projects may affect aquatic life, water quality, biodiversity, bird habitats and fisheries.
5. **Site selection:** Suitable water bodies require detailed feasibility studies, hydrographic assessments and environmental assessments.
6. **Institutional coordination:** Multiple agencies, including water resources departments, electricity utilities, environmental authorities, municipal bodies and industries, may be involved.
7. **Financial viability:** Developers require affordable financing and clear revenue streams through long-term power purchase agreements.
8. **Regulatory complexity:** Lack of clear frameworks for identifying water bodies, allocating them and defining institutional responsibilities can delay projects.

Way Forward

1. **Scientific site selection:** Identify suitable water bodies through comprehensive hydrographic and environmental assessments.
2. **Ecological safeguards:** Exclude ecologically sensitive areas and locations important for biodiversity, birds and fisheries unless thorough assessments establish their suitability.
3. **Climate-resilient design:** Develop systems capable of withstanding extreme winds, waves and fluctuating water levels.
4. **Affordable financing:** Improve access to low-cost finance and ensure bankable projects with predictable revenue streams.
5. **Streamline approvals:** Establish clear frameworks for water-body allocation and institutional responsibilities.
6. **Strengthen coordination:** Improve coordination among state agencies, utilities, water and irrigation departments, environmental authorities and other stakeholders.
7. **Promote domestic manufacturing:** Use the expansion of floating solar to strengthen the domestic supply chain and generate employment.
8. **Integrate storage:** Develop floating solar along with suitable energy storage to improve grid stability.

Conclusion: Floating solar can become an important **complement to ground-mounted and rooftop solar**, helping India expand renewable capacity while reducing pressure on scarce land. **PM-SSY provides the policy and financial push**, but its success will depend on environmentally responsible site selection, climate-resilient designs, affordable financing and effective institutional coordination.

Question: What is floating solar technology? Discuss its significance for India, the challenges associated with its large-scale adoption and the way forward.

Source: [Indian Express](#)

Vande Mataram and the Right to Dissent

UPSC Syllabus: Gs Paper 2- Constitution of India

Introduction

The **Prevention of Insults to National Honour (Amendment) Act, 2026** extends criminal-law protection to **Vande Mataram**, similar to the National Anthem. This raises questions about its historical and constitutional status, the freedom of conscience, and the right to remain silent. The central issue is whether respect for a national symbol can coexist with an individual's right to peaceful non-participation and dissent.

Historical Status and Recognition of Vande Mataram

1. **Origin and freedom struggle:** Vande Mataram, written by Bankim Chandra Chatterjee, appeared in his 1882 novel *Anandamath* and became popular during India's freedom movement.
2. **Early public recognition:** Rabindranath Tagore first publicly recited Vande Mataram at the 1896 session of the Indian National Congress in Calcutta.

3. **Meaning of the expression:** In "Vande Mataram", *Vande* means to praise or celebrate, while *Mataram* means mother.
4. **1937 decision on official use:** In October 1937, the Congress Working Committee decided that only the first two stanzas would be sung at official gatherings.
5. **Reason for limiting the stanzas:** The later stanzas contain devotional and goddess-centred references, while some verses of *Anandamath* were also seen as portraying Muslims as adversaries.
6. **Nature of the first two stanzas:** The first two stanzas use pastoral and secular imagery and do not contain references to any deity.
7. **Recognition in 1950:** On January 24, 1950, Dr. Rajendra Prasad declared Jana Gana Mana as the National Anthem and said Vande Mataram would be honoured equally.
8. **Different status from the National Anthem:** Vande Mataram was neither declared the National Anthem nor a co-anthem, and the Constitution contains no reference to a "National Song".

Judicial Position on National Symbols and Individual Rights

1. **Balancing national respect and individual rights:** The question of respecting national symbols also involves whether citizens can be compelled to participate despite genuine religious objections.
2. **Central constitutional issue:** *Bijoe Emmanuel v. State of Kerala (1986)* examined whether citizens could refuse to sing the National Anthem because of genuine religious beliefs.
3. **Religious basis of non-participation:** Three students belonging to Jehovah's (Christian religious group) Witnesses stood respectfully during the National Anthem but refused to sing because of their religious convictions.
4. **Protection under Article 19(1)(a):** The Supreme Court held that freedom of speech and expression includes the right to remain silent.
5. **Protection under Article 25:** Compelling a person to sing despite a genuine religious objection can violate freedom of conscience under Article 25(1).
6. **Respect does not require singing:** The Court held that respect for the National Anthem can be shown by standing respectfully, without necessarily joining in the singing.
7. **Fundamental rights over fundamental duties:** Article 51A(a) cannot be used to cut down or override the fundamental rights guaranteed under Part III of the Constitution.
8. **Limits of the 1971 Act:** The Supreme Court interpreted the Prevention of Insults to National Honour Act, 1971 as requiring respectful conduct, not compulsory participation.
9. **Relevance to Vande Mataram:** The same principle can protect peaceful non-participation in Vande Mataram, especially where participation conflicts with an individual's freedom of conscience.

What Does the 2026 Amendment Provide?

1. **Extension of statutory protection:** The Prevention of Insults to National Honour (Amendment) Bill, 2026 amended Section 3 to extend statutory protection to Vande Mataram.
2. **Parliamentary passage:** The Bill was introduced in the Rajya Sabha on July 24, 2026, passed there on July 29 and cleared by the Lok Sabha on July 30.
3. **Limited parliamentary discussion:** The amendment was passed after brief discussions, with opposition parties raising concerns about its timing and possible cultural implications.
4. **Two punishable acts:** Section 3 of the Prevention of Insults to National Honour Act, 1971, as amended in 2026, punishes anyone who intentionally prevents the singing or causes disturbance to an assembly engaged in singing..
5. **Same protection for both compositions:** These provisions now apply to both the National Anthem and the National Song, giving them similar criminal-law protection.
6. **Nature of punishment:** The offence carries imprisonment of up to three years, a fine, or both, while repeat offenders face a minimum imprisonment of one year.

Key Legal and Constitutional Questions Raised by the Amendment

1. **Scope of compulsory participation:** Section 3 of the Prevention of Insults to National Honour Act, 1971, as amended in 2026, does not expressly require any person to sing Vande Mataram or participate in its rendition.
2. **No prescribed version of the song:** The law does not specify which stanzas must be sung or require all six stanzas for statutory protection.
3. **Freedom of conscience:** Article 25 protects freedom of conscience, which may apply where participation conflicts with sincerely held religious beliefs.
4. **Different constitutional status:** Vande Mataram and the National Anthem have different constitutional positions, raising questions about extending identical criminal-law protection to both.
5. **Proportionality of punishment:** The maximum punishment of three years' imprisonment raises questions about whether it is proportionate to the conduct prohibited under Section 3.
6. **Comparison with the Bharatiya Nyaya Sanhita:** Section 197(1)(d) of the Bharatiya Nyaya Sanhita, 2023, also allows imprisonment up to three years for publishing false or misleading information threatening national interests.

Way Forward

1. **Distinguish non-participation from disruption:** Peaceful refusal or silence should be clearly separated from intentional prevention or disturbance during the singing.
2. **Protect freedom of conscience:** Implementation should remain consistent with Articles 19(1)(a) and 25 and the principles established in *Bijoe Emmanuel*.
3. **Prevent coercive interpretation:** The law should not be interpreted in a way that indirectly forces citizens to participate against their conscience.
4. **Respectful non-participation:** The law should distinguish peaceful silence from intentional prevention or disturbance, protecting those who remain respectful without participating.
5. **Examine proportionality of punishment:** The three-year maximum punishment should be assessed in relation to the gravity of the prohibited act and harm caused.

Conclusion

Vande Mataram holds an important place in India's freedom struggle and deserves due honour. However, its legal protection must remain consistent with fundamental rights. The 2026 amendment punishes intentional prevention and disturbance, not peaceful non-participation. Its implementation should therefore respect freedom of conscience and the right to remain silent, while ensuring that the punishment remains proportionate to the prohibited conduct.

Question for practice:

Evaluate the constitutional and legal issues surrounding the extension of criminal-law protection to Vande Mataram, particularly in relation to freedom of conscience and the right to dissent.

Source: The Hindu; [The print](#)

Need for Long Elephant Corridors

UPSC Syllabus: Gs Paper 3- Environment

Introduction

Elephants naturally travel long distances in search of **food, water and suitable habitats**. However, infrastructure, mining and changing land use are increasingly disrupting their traditional movement routes. This can fragment habitats and push elephants towards farms and human settlements, increasing **human-elephant conflict**. The Supreme Court's direction for a fresh survey has renewed focus on protecting **long and unobstructed elephant corridors**.

Elephant Movement, Corridors and Their Current Status

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1. **Large Movement Range:** A male elephant's average home range extends between 50 and 300 square kilometres, depending on food, water, shelter and other available resources.
2. **Seasonal Resource Movement:** The seasonal and spatial availability of food, water and habitat strongly influences the direction and extent of elephant movement.
3. **Migration During Dry Periods:** During dry months, elephants commonly migrate into Kerala to access food and water in the relatively moist Western Ghats forests.
4. **Impact of Drought and Climate:** Climate-related changes and drought have historically forced elephant herds to move towards areas offering better resources.
5. **Meaning of Elephant Corridors:** Elephant corridors are movement pathways connecting two natural habitats, allowing elephants to move between different habitat areas.
6. **India's Major Elephant Landscapes:** India has four principal elephant landscapes—Western Ghats; North-Eastern Hills and Brahmaputra floodplains; Shivalik Hills and Gangetic plains; and Central India and Eastern Ghats.
7. **Elephant Concentration in the Western Ghats:** More than 50% of India's 22,446 elephants occur in the Western Ghats, including Karnataka (6,013), Tamil Nadu (3,136) and Kerala (2,785).
8. **Changing Distribution in Central India:** Elephant movement expanded in Central India from the mid-to-late 1980s, first after drought and later due to mining pressures.

Significance of Long and Unobstructed Elephant Corridors

1. **Connecting Fragmented Habitats:** Corridors provide connectivity between fragmented natural habitats, allowing elephant populations to move instead of remaining separated in isolated habitat areas.
2. **Supporting Natural Dispersal:** Corridors allow elephants to disperse naturally between habitats as part of their regular movement across wider landscapes.
3. **Maintaining Genetic Diversity:** Movement between different elephant populations enables genetic exchange, helping maintain diversity within the overall population pool.
4. **Access to Natural Resources:** Well-conserved corridors provide access to natural food and water, especially when seasonal conditions affect resource availability.
5. **Supporting Long-Distance Movement:** Long corridors are essential because elephant herds naturally travel over large areas and may move across different states.
6. **Reducing Pressure on Croplands:** Access to connected natural habitats can prevent elephants from entering crop fields while searching for food and water.
7. **Reducing Human-Elephant Conflict:** Unobstructed movement through natural habitats can reduce encounters between elephants and human settlements, helping limit conflict.

Major Concerns Affecting Elephant Corridors

1. **Infrastructure and Physical Barriers:** Highways, railway lines, canals, power lines, walls and electric fences can disrupt or block traditional elephant routes, pushing herds towards farms and settlements.
2. **Mining and Industrial Activity:** Mining and industrial activities can fragment elephant habitats and disturb movement between connected forest areas.
3. **Land-Use Changes:** Agriculture, plantations and other land-use changes are increasingly fragmenting habitats and altering traditional elephant movement routes.
4. **Western Ghats Fragmentation:** Changing land use, coffee and tea plantations, invasive plants and farmland fencing are rapidly fragmenting elephant habitats in this landscape.
5. **Shivalik and Brahmaputra Region:** Railway lines, roads, power infrastructure and land-use changes have disrupted traditional corridors and fragmented habitats in these areas.

6. **Habitat Loss in Central India:** Habitat loss and mining pressures have driven elephants from Jharkhand and Odisha into Chhattisgarh over the last two decades.
7. **Expansion into New Areas:** Elephants later expanded into Umaria and Shahdol in Madhya Pradesh and Gadchiroli in Maharashtra, showing changing movement patterns.

Initiatives for Corridor Mapping and Protection

1. **National Corridor Mapping:** The government's major 2023 mapping exercise documented 150 elephant corridors across 15 states within India's four major elephant landscapes.
2. **Identification of Corridor Bottlenecks:** A Southern India report mapped barriers across 32 corridors, helping identify pressures affecting elephant movement.
3. **West Bengal's Corridor Network:** West Bengal has the highest number of identified corridors, with 26 corridors located across its northern and southern regions.
4. **Charmar-Jingol Corridor:** This 20-km-long and 2.5-km-wide corridor supports the movement of an estimated 80–100 elephants from Odisha into Chhattisgarh.
5. **Emerging Corridor in Bihar:** The Jamui–Jhajha–Chakayi forest stretch was included in the national corridor list in 2023, showing the identification of emerging elephant movement routes.
6. **Existing Government Guidelines:** The Environment Ministry has issued mandatory guidelines to ensure seamless and unobstructed elephant corridors across different states.
7. **Supreme Court's Fresh Survey:** The Supreme Court directed the Union government to conduct a fresh survey and submit a comprehensive report on preventing corridor obstructions.
8. **Review of Coercive Measures:** The Court also sought details of steps taken against fireballs, spikes, firearms and other coercive methods used to divert elephants.

Way Forward

1. **Conduct Detailed Field-Based Mapping:** Mapped corridors should be refined through ground studies, GPS telemetry, occupancy surveys and participatory mapping to identify their actual boundaries.
2. **Provide Suitable Legal Protection:** Clearly identified corridors can be protected through appropriate legal frameworks to regulate land-use changes and incompatible development activities.
3. **Secure Land in Critical Corridors:** Where corridors pass through private or agricultural land, suitable mechanisms such as land purchase, lease or other arrangements can support connectivity.
4. **Restore Degraded Corridor Areas:** Native vegetation should be restored, invasive species removed, and water and habitat cover improved in ecologically degraded stretches.
5. **Reduce Barriers from Linear Infrastructure:** Roads, railways, power lines and other infrastructure should adopt suitable mitigation measures to maintain safe elephant movement across corridors.
6. **Involve Local Communities:** Communities affected by elephant movement should be involved through participation, awareness, compensation and support for crop and land-use concerns.
7. **Strengthen Monitoring and Adaptive Management:** GPS collars, camera traps, drones, occupancy studies and community reporting can help track corridor use and identify areas needing intervention.
8. **Improve Inter-State and Inter-Agency Coordination:** Corridors crossing forest divisions, districts and states require joint action plans and coordination among concerned authorities.
9. **Integrate Corridors with Elephant Conservation Plans:** Corridor protection should be incorporated into broader Elephant Conservation Plans, linking habitat protection with conflict management and other conservation measures.
10. **Strengthen Research, Technology and Funding:** Research on elephant movement, corridor design and climate impacts, along with monitoring technology and adequate funding, can strengthen corridor conservation.

Conclusion

Long and unobstructed corridors are essential for elephant movement, access to resources, natural dispersal and **genetic exchange**. Their fragmentation can isolate habitats and push elephants towards farms and settlements. Therefore, **fresh surveys, removal of bottlenecks, effective implementation of guidelines and coordinated action** are necessary to protect elephant corridors and reduce human-elephant conflict.

Question for practice:

Discuss the need for long and unobstructed elephant corridors in India and the challenges involved in their protection.

Source: [Indian Express](#)

Urbanisation in India: Towards Inclusive, Sustainable and Resilient Cities

Source: The post “Urbanisation in India: Towards Inclusive, Sustainable and Resilient Cities” has been created based on “Urbanisation in India: Towards Inclusive, Sustainable and Resilient Cities” published in “Indian Express” on 25th August 2026.

UPSC Syllabus: GS 3- Indian Economy

Context: Delhi’s Master Plan for 2047 aims to create a richer, taller and better-connected global city. However, urban planning is not merely a technical exercise of land use, density and infrastructure; it determines **who gets access to housing, employment and public spaces and who benefits from rising land values**.

Major concerns

1. **Affordable housing and spatial inequality:**
Housing in peripheral areas may be formally affordable, but high transport costs, long commutes and limited access to employment can make it unaffordable for low-income households.
2. **Exclusion of informal workers:**
Street vendors, construction workers, domestic workers, sanitation workers, small traders and delivery riders are essential to Delhi’s economy but are often treated as obstacles to a clean and planned city.
3. **Needs of gig workers are overlooked:**
Delivery riders require not only roads but also **safe parking, toilets, drinking water, charging points, rest spaces and affordable housing near employment centres**.
4. **Inadequate rehabilitation of informal settlements:**
The principle of “*Jahan jhuggi, wahan makan*” is important because relocation to distant housing can disconnect residents from employment and livelihoods.
5. **Caste and occupational inequalities:**
Access to housing, land, dignity and public services is also shaped by caste and occupation. Workers in sanitation, waste management and other precarious occupations face insecurities that income-based classifications alone cannot capture.
6. **Gendered impact of urban planning:**
Women’s inclusion requires more than toilets and childcare facilities. The location of affordable housing affects **commuting, unpaid care work and access to employment**, making housing, transport and care infrastructure interdependent.
7. **Accessibility for persons with disabilities:**
A ramp alone does not ensure accessibility if connecting pavements are inaccessible or public transport cannot be used independently. Planning must enable independent movement between homes, workplaces, educational institutions, healthcare and recreational spaces.
8. **Public investment and private land gains:**
Metro lines and commercial corridors can increase surrounding land values. If these gains primarily accrue to property owners while poorer residents are displaced, public investment can generate **private wealth while socialising the costs of displacement**.

9. **Visibility versus recognition of the informal economy:**

The experience around the **2023 G20 Summit**, when vendors were removed from prominent locations and informal settlements were screened from public view, highlighted the contradiction between Delhi's dependence on informal workers and its reluctance to acknowledge their presence.

Way forward

1. **Adopt an integrated approach to housing, transport and employment** so that affordable housing is located close to livelihood opportunities.
2. **Plan for informal and gig workers as legitimate urban stakeholders** by providing essential facilities such as rest areas, toilets, parking and charging infrastructure.
3. **Ensure livelihood-sensitive rehabilitation** so that relocation does not sever residents from employment and social networks.
4. **Make public infrastructure universally accessible** by integrating accessible pavements, transport and public facilities into planning.
5. **Ensure equitable sharing of land-value gains** generated by public infrastructure so that development does not become a mechanism for displacement.

Conclusion: The success of **Delhi 2047** should not be measured only by whether the capital becomes richer, taller or more connected. Its real test is whether the people who **build, clean, deliver, drive and sustain the city can continue to afford a place in its future**. Thus, Delhi's master planning must move from a numbers-based approach towards **inclusive, livelihood-sensitive and people-centred urbanisation**.

Question: Delhi's Master Plan for 2047 seeks to make the capital globally competitive through housing, transit-oriented development, economic corridors and infrastructure. Discuss the major challenges of ensuring that such urban development remains inclusive and affordable for the city's vulnerable and working populations.

Source: [Indian Express](#)

Time for Yoshida Doctrine 2.0

Source: The post "**Time for Yoshida Doctrine 2.0**" has been created based on "**Time for Yoshida Doctrine 2.0**" published in "**Tribune**" on 25th August 2026.

UPSC Syllabus: GS 2- International Relations

Context: The **Yoshida Doctrine** enabled post-war Japan to rely on the US security umbrella while concentrating on economic recovery. Today, Japan faces a "China dilemma" because China is simultaneously its major economic partner and principal security concern. India faces a similar challenge. This creates the need for a **Yoshida Doctrine 2.0 based on economic de-risking, deterrence and diversified partnerships**.

Requirement of Yoshida Doctrine 2.0

1. **China's economic importance:**
China is deeply integrated into Japanese and Indian supply chains, making complete economic decoupling costly and impractical.
2. **Growing security threat:**
Both India and Japan face concerns over China's increasing military capabilities and unilateral attempts to alter the status quo, particularly in the Indo-Pacific.
3. **Need to balance security and economic interests:**
The objective should be to **de-risk from China without completely decoupling**, while deterring aggression without provoking a wider conflict.
4. **Need for strategic autonomy:**
Both countries need diversified partnerships so that they are not strategically dependent on either Washington or Beijing.

Three pillars of Yoshida Doctrine 2.0

1. Economic security and resilient supply chains

- a. India and Japan should cooperate on **critical minerals, semiconductors and resilient supply chains**.
- b. More than 1,400 Japanese firms operate in India, with around half engaged in manufacturing.
- c. Japan's proposed **\$61-billion investment over the next decade** can strengthen India's manufacturing base while providing Japanese companies an alternative to excessive dependence on China.
- d. Bilateral trade should be progressively expanded towards **\$100 billion**.

2. Defence technology and credible deterrence

- a. Economic cooperation needs to be complemented by deployable security capabilities.
- b. Japan has increased defence spending from **1% to around 2% of GDP**, while India's defence spending as a share of GDP has declined despite rising absolute expenditure.
- c. Japan's gradual relaxation of post-war arms export restrictions creates opportunities for deeper defence cooperation.
- d. The proposed transfer and production of **Mogami-class frigates under Make-in-India**, along with BrahMos integration, can strengthen maritime capabilities.
- e. Cooperation should particularly focus on **underwater domain awareness, maritime ISR, unmanned systems, secure communications and anti-submarine warfare**.

3. Joint outreach in West Asia

- a. Both India and Japan are heavily dependent on imported hydrocarbons.
- b. Cooperation in West Asia can therefore combine **energy security with maritime security**.
- c. A joint framework for maritime security in West Asia would protect freedom of navigation while remaining relatively low-provocation and high-utility.

Major constraints

1. **Economic interdependence with China:**
India-China trade reached **\$127.7 billion in FY 2024-25**, while Japan-China trade was around **\$300 billion in 2024**, showing that de-risking cannot simply mean economic separation.
2. **Domestic political and institutional constraints:**
Japan faces pacifist sentiment and a risk-averse defence industry, while India has traditionally preferred outright defence purchases over co-development.
3. **Currency vulnerabilities:**
Weakness of the yen and rupee increases the cost of imports, including defence equipment, and complicates strategic decision-making.
4. **Implementation deficit:**
Despite strong political convergence, India and Japan have not yet translated their shared concerns regarding China into sufficiently **deployable and deterrent capabilities**.

Way forward

1. India and Japan should **ring-fence strategic projects** from routine procurement procedures.
2. Two or three flagship projects should be prioritised in areas such as **underwater domain awareness, maritime ISR and secure communications**.
3. Defence cooperation should move from buyer-seller relations towards **co-development and co-production**.
4. Economic diversification should focus on critical technologies and supply chains rather than complete decoupling from China.
5. Maritime cooperation should extend from the Indo-Pacific to **West Asia**, linking security with energy interests.

Conclusion: The original Yoshida Doctrine succeeded because Japan made a clear strategic choice and pursued it consistently for decades. A **Yoshida Doctrine 2.0** should similarly combine **economic growth with strategic resilience**: de-risk from China without decoupling, deter aggression without provoking war, and

diversify partnerships without becoming dependent on any single power. For India and Japan, the priority is therefore to move **from shared anxiety to shared deterrent capability and from strategic rhetoric to implementation.**

Question: India and Japan face a common strategic challenge from China while remaining economically interdependent with it. In this context, discuss the relevance of a “Yoshida Doctrine 2.0” for India-Japan relations.

Source: Tribune

How the SC Ruling Redefined 'Industry'

UPSC Syllabus: Gs Paper 3- Indian economy and Industry

Introduction

The Supreme Court's nine-judge Constitution Bench revisited the meaning of “**industry**” under Indian labour law. The issue centred on the **1978 Bangalore Water Supply** precedent and its triple test. Pending disputes under the **Industrial Disputes Act, 1947** will continue under this test. However, the **Industrial Relations Code, 2020**, which came into force in November 2025, will be interpreted independently.

Evolution of the Definition of 'Industry'

1. Definition under the 1947 Act: Section 2(j) of the Industrial Disputes Act, 1947 defined “industry”, but its broad wording created disputes over its actual scope.

2. The 1978 Bangalore Water Supply ruling:

- **The triple test:** The 1978 ruling treated an undertaking as an industry when it involved systematic activity, employer-employee cooperation, and production or supply of goods or services.
- **Profit motive was not necessary:** The Court held that an activity could remain an industry even when it was not carried out to earn profit.
- **Wider institutional coverage:** The broad definition brought hospitals, educational institutions and municipalities within the legal definition of an industry.
- **Impact on workers:** The broad interpretation enabled workers across diverse sectors to seek legal recourse, enforce labour rights and engage in collective bargaining.
- **Dominant nature test:** Where an establishment performed several activities, its dominant nature could help determine whether it qualified as an industry.
- **Core sovereign function exception:** Only genuine core functions, such as defence, judiciary and law enforcement, remained outside the scope of industry.

3. Parliament's 1982 response: The Industrial Disputes (Amendment) Act, 1982 sought to exclude several institutions, but its amended definition was never notified.

4. The Industrial Relations Code, 2020: The new Code introduced its own definition and exclusions, including charitable institutions, domestic services and sovereign government functions.

Why Was the 1978 Interpretation Referred for Reconsideration?

- 1. Continuing judicial disagreement:** Courts later differed on whether government welfare activities and certain departmental functions could be treated as industries.
- 2. The Social Forestry dispute:** In 1996, a three-judge Bench treated the Social Forestry Department as an industry, while a later two-judge Bench took a narrower view regarding a forest department.
- 3. The 2005 Jai Bir Singh ruling:** A five-judge Bench expressed reservations about the expansive 1978 interpretation of “industry” and referred the matter to a larger Bench for reconsideration.
- 4. The 2017 seven-judge Bench:** The matter was placed before a seven-judge Bench, which directed that it should be examined by a nine-judge Constitution Bench.
- 5. Validity of the reference:** The recent Bench itself differed on whether the 2005 reference was properly made, producing an effective 6:3 majority supporting its validity.

6. **The recent nine-judge hearing:** The Bench examined the correctness of the triple test, sovereign functions and the continuing relevance of the 1978 precedent.

Recent Supreme Court Ruling: What Did the Court Decide?

1. **Refinement of the 1978 test:** By a 5:4 majority, the Court held that the 1978 triple test required further refinement, while its essential framework had stood the test of time.
2. **Pending cases under the old law:** Pending proceedings under the Industrial Disputes Act, 1947 will continue to be decided using the existing *Bangalore Water Supply* triple test.
3. **No effect on existing cases:** The reformulated test will apply only in the future and will not affect pending or already concluded cases.
4. **Independent interpretation of the new Code:** The meaning of “industry” under the Industrial Relations Code, 2020 will be interpreted independently under its own text and statutory scheme, without being governed by the 1978 precedent.

4. Five Distinct Judicial Views on the Definition of ‘Industry’

1. CJI Surya Kant and three judges

- **Need for refinement:** CJI Surya Kant, joined by Justices Satish Chandra Sharma, Alok Aradhe and Vipul M. Pancholi, held that the 1978 triple test required refinement.
- **Commercial character:** They proposed that an activity should have a discernible commercial character similar to trade or business, even if profit motive remains irrelevant.
- **Effect of the new law:** However, their reformulated test could not apply under the repealed 1947 Act because the Industrial Relations Code, 2020 had already come into force.

2. Justice B.V. Nagarathna

- **No need for reconsideration:** She defended the broad 1978 definition and warned that changing it could create uncertainty and disturb industrial peace..
- **Importance of the broad definition:** She viewed the broad test as important when privatisation and economic changes were shifting workers across sectors.

3. Justices Dipankar Datta and Ujjal Bhuyan

- **Importance of settled precedent:** Justice Datta, with Justice Bhuyan agreeing, stressed that a long-settled seven-judge Bench precedent should not be reopened without strong reasons.
- **Objection to the reference:** They considered the 2005 reference flawed and held that the required grounds for reconsidering the 1978 ruling were not established.

4. Justice Joymalya Bagchi

- **Valid reference, but no reformulation:** Justice Bagchi accepted the validity of the reference but disagreed with the need to redraft the 1978 triple test.
- **Support for the existing approach:** He rejected the need to reformulate the triple test, holding that concerns about it covering every organised activity were misplaced. He also held that the absence of profit motive did not take an activity outside the scope of an industry.

5. Justice P.S. Narasimha

- **Reconsideration became unnecessary:** Justice Narasimha held that debating changes to the triple test had become unnecessary because the Industrial Disputes Act, 1947 had been repealed.
- **Focus on the new legal framework:** He viewed the issue as having limited future relevance because disputes under the Industrial Relations Code would require independent interpretation.

Significance of the Ruling

1. **Continuity for pending disputes:** Pending cases under the Industrial Disputes Act, 1947 will continue to be decided using the **1978 Bangalore Water Supply triple test**.
2. **No reopening of settled cases:** The ruling protects concluded decisions by ensuring that the reformulated approach does not operate retrospectively.
3. **A separate framework for the new labour law:** The **Industrial Relations Code, 2020** is not bound by the 1978 interpretation and must be understood through its own provisions.

4. **Scope for fresh judicial interpretation:** Future courts will determine how the new Code applies to different activities and where the boundaries of “industry” should be drawn.
5. **Impact on worker protection:** The future interpretation of “industry” under the Code will affect which establishments and workers can claim protection under industrial dispute law.
6. **A shift from precedent to statutory interpretation:** The ruling moves future disputes away from automatic reliance on the 1978 precedent towards interpretation based on the text and scheme of the new Code.

Conclusion

The ruling preserves the **1978 triple test** for pending disputes under the old law. It does not automatically extend the same interpretation to the **Industrial Relations Code, 2020**. This creates a separate framework for interpreting “industry” under the new labour law. Future courts will determine its scope and its impact on workers and establishments.

Question for practice:

Examine how the Supreme Court’s recent ruling has reshaped the interpretation of “industry” under Indian labour law.

Source: [The Hindu](#)

India Needs a Grid Revolution

UPSC Syllabus: Gs Paper 3- Infrastructure

Introduction

India has rapidly expanded its clean energy capacity, bringing the 500 GW non-fossil capacity target within reach. However, adding renewable capacity alone cannot ensure affordable, reliable and clean electricity. The grid must also absorb, transmit and deliver this power when consumers need it. Rising renewable generation, changing demand patterns and growing curtailment now expose gaps in grid infrastructure, storage, planning, operations and power markets, making a comprehensive grid transformation necessary.

Current Status of India’s Clean Energy Transition and Power System

1. **Rapid Expansion of Non-Fossil Capacity:** India has **297 GW of non-fossil capacity**, with **138 GW** of large-scale solar and wind under construction and **40 GW** of distributed solar planned.
2. **Growing Role in Electricity Generation:** Non-fossil sources now provide about **one-fourth of annual electricity generation**, and their share crossed **50% during daytime** in July 2025 and July 2026.
3. **Policy Support for Renewable Growth:** Financial incentives, competitive auctions and new electricity trading platforms have supported renewable deployment, integration and market-based price discovery.
4. **Clean Energy Cannot Be Fully Utilised:** Between **April and June 2026**, India curtailed or restricted **8,133 GWh of solar generation** because the grid could not absorb and deliver it.
5. **Storage Remains Inadequate:** In India, **1 GW of battery capacity supports about 60 GW of solar and wind**, compared with **4–13 GW** in Australia, the United States and China.

Why Rapid Renewable Capacity Addition Alone Is Not Enough

1. **Cheap Generation Is Not Cheap Electricity:** Low solar or wind tariffs do not ensure affordable electricity when curtailment, congestion, balancing and backup costs increase.
2. **The Whole Power System Must Progress Together:** Generation, transmission, storage, flexible capacity, grid operations and markets must develop as **one coordinated system**.
3. **Excess Renewable Power Is Curtailed:** Daytime renewable electricity is being curtailed despite high demand after sunset because storage and reserves are limited.

4. **Separate Planning Raises Consumer Costs:** Developing generation, networks and flexibility separately can increase costs through delayed transmission and underutilised capacity.
5. **The Objective Is 24×7 Clean Electricity:** India must deliver electricity that is **affordable, abundant, reliable and clean**, rather than focusing only on installed capacity.

Key Challenges in Building a Reliable and Renewable-Based Power System

1. **Inflexible Grid Design:** Existing grids were largely built for one-way electricity flows and are not designed for high levels of variable renewable generation.
2. **Transmission Expansion Is Too Slow:** Renewable projects can be installed faster than transmission lines, creating congestion and limiting power evacuation.
3. **Declining Reserve Availability:** Available reserve capacity is becoming thin, reducing the system's ability to manage sudden changes in demand or renewable output.
4. **Insufficient Grid Visibility:** Many distribution companies lack adequate information on consumer demand, network assets, rooftop solar and electric vehicle impacts.
5. **Traditional Planning Cannot Handle Uncertainty:** Periodic planning based on fixed demand forecasts is less suitable when weather, demand and generation conditions change rapidly.
6. **Changing Demand Patterns:** Electric mobility, industrial electrification and data centres are changing when, where and how electricity is consumed.
7. **Underdeveloped Wholesale Markets:** Most electricity is sold through **long-term 25-year contracts**, leaving limited scope for competitive short-term electricity trading and flexible resource use.
8. **Markets Mainly Reward Energy Generation:** Current arrangements do not adequately value capacity, dispatchability, rapid ramping, reserves, storage or congestion relief.
9. **Technology-Specific Procurement Limits Competition:** Separate auctions for thermal, solar, wind and renewable energy with storage prevent direct competition for least-cost system services.

Way Forward

A. Modernise and Strengthen the Grid

1. **Use Advanced Grid Technologies:** Reconductoring existing transmission lines can increase power evacuation using the same infrastructure and reduce the need for entirely new lines.
2. **Expand Flexible Capacity and Reserves:** Flexible operation of the state-owned thermal fleet can strengthen reserves beyond central generating stations and support variable renewable output.
3. **Promote Grid-Forming Technologies:** Grid codes should mandate **grid-forming inverters** to support stability as renewable generation becomes a larger part of the power system.
4. **Co-Locate Renewable Energy and Storage:** Battery storage should be developed alongside existing and new renewable projects to shift surplus electricity to periods of higher demand.

B. Build an Adaptive and Intelligently Operated Grid

1. **Adopt Adaptive Planning and Operations:** The power system should continuously observe conditions, anticipate changes, act, learn and adapt as demand and weather evolve.
2. **Use Physical Artificial Intelligence:** Physical Artificial Intelligence can combine weather, demand, plant, network and market data to compare physically feasible operating decisions.
3. **Guide Investments Through Operating Evidence:** Repeated bottlenecks should help determine whether additional investment is needed in transmission, storage, flexible generation or demand response.
4. **Keep Human Control Over Decisions:** Physical Artificial Intelligence should remain explainable, grounded in grid physics and subject to human oversight by system operators.

C. Accelerate Digitalisation and Demand-Side Management

1. **Expand the Use of Smart Meters:** Smart meters can provide better information on electricity use and help consumers change consumption during grid stress.
2. **Introduce Time-Varying Tariffs:** Smart meter data can support tariffs that encourage consumers to shift electricity use to suitable periods.
3. **Improve Consumer Information:** Consumer-facing applications should provide real-time electricity prices and detailed information on electricity consumption.
4. **Create a Shared Data System:** Grid institutions need interoperable data and a shared operating picture to coordinate generation, transmission and distribution decisions.

D. Reform Power Markets and Procurement

1. **Reward Capacity and Flexibility:** Power markets should pay for capacity, storage, reserves, rapid ramping and flexible demand based on when and where these services are needed.
2. **Develop Short-Term Capacity Markets:** Centrally allocated thermal capacities can initially be brought into short-term capacity markets, followed by gradual market expansion.
3. **Use New Market-Based Instruments:** The **Contracts-for-Difference pilot** and similar instruments can attract investment in projects supplying clean electricity when utilities need it most.
4. **Enable Cross-Technology Competition:** Utilities should specify future needs such as capacity, flexibility and grid stability, allowing different technologies to compete on merit.
5. **Adopt Integrated Power System Planning:** Generation, transmission and flexibility should be planned together, while future resource adequacy is regularly reassessed using operating evidence.
6. **Support Innovative Procurement Designs:** The Ministry of Power and the Central Electricity Regulatory Commission should promote tender and contract designs that compare technologies on least-cost outcomes.
7. **Use Expandable Grid Corridors:** Interconnected and expandable transmission corridors can support data centres and industrial clusters as electricity demand develops over time.

Conclusion

India's energy transition must now move from adding renewable capacity to integrating and using it effectively. A modern grid, adequate storage, adaptive planning, intelligent operations and better power markets must work together. The real measure of success will not be gigawatts installed, but the ability to deliver affordable, abundant, reliable and clean electricity to consumers when and where they need it.

Question for practice:

Discuss the need for a grid revolution to ensure the effective integration and utilisation of renewable energy in India.

Source: [Business Standard](#); [Economic times](#)

What are H-1B visas for skilled workers and what changes loom?

Source: The post "What are H-1B visas for skilled workers and what changes loom?" has been created based on "What are H-1B visas for skilled workers and what changes loom?" published in "DD News" on 26th August 2026.

UPSC Syllabus: GS-2- International Relations

Context: The **H-1B visa programme**, established by the U.S.A Congress in **1990**, allowed U.S.A employers to hire skilled foreign workers for a limited period. The programme is particularly important for **technology and other specialised sectors** facing shortages of qualified workers.

Key Features of the H-1B Programme

1. The programme provides **65,000 visas annually**, along with an additional **20,000 visas for workers with advanced degrees**.
2. H-1B visas are generally granted for **three years** and can be renewed up to **six years**.

3. The programme is especially important for recruiting skilled professionals from **India and China**.
4. Major H-1B sponsors include **Deloitte, PwC, Ernst & Young, TCS, Infosys, HCLTech and LTIMindtree**.
5. Supporters argue that H-1B visas help U.S.A companies recruit highly skilled professionals and address shortages of qualified American workers.
6. Critics argue that some companies use the programme to employ foreign workers at lower wages instead of hiring American workers.

Major Changes under the Trump Administration

1. The administration initially increased the H-1B fee to **\$100,000**, while the earlier fee generally ranged between **\$2,000 and \$5,000**.
2. The Department of Homeland Security has proposed making the increase permanent at **\$103,265**.
3. The proposed fee has led to **multiple lawsuits** by businesses, states, unions and employers.
4. A federal judge had ruled that the earlier fee was illegal and blocked the administration from collecting it, while related cases remain under judicial consideration.
5. The administration has introduced **enhanced vetting** of H-1B applicants.
6. U.S.A consulates have been directed to scrutinise applicants' **LinkedIn profiles and resumes**, particularly applicants in technology backgrounds who may have been involved in alleged suppression of protected expression.
7. Increased scrutiny and costs have affected companies' **hiring and expansion plans**, with some major H-1B users increasing operations in **India**.
8. H-1B registrations have also declined significantly, from about **759,000 in 2023 to 344,000 in 2025**, a fall of more than 25% from 2024.

Implications

1. The higher fee could make it **more expensive for U.S.A companies to recruit skilled foreign professionals**.
2. Enhanced vetting could increase **processing difficulties and uncertainty** for employers and applicants.
3. Reduced access to H-1B workers could affect sectors that depend heavily on **specialised global talent**.
4. For India, tighter H-1B rules could particularly affect **Indian technology professionals and IT outsourcing companies**.
5. At the same time, the measures could support the administration's objective of **protecting employment opportunities for American workers**.

Conclusion: The H-1B programme remains an important mechanism for meeting U.S.A demand for specialised skilled workers. The proposed **\$103,265 fee, enhanced vetting and declining registrations** represent a significant tightening of the programme. The challenge for U.S.A policymakers is to balance **protection of American workers with the need of U.S.A industries to access highly skilled global talent**.

Question: What is the H-1B visa programme? Discuss the major changes proposed under the Trump administration and their implications for skilled foreign workers and U.S.A employers.

Source: DD News

UPI — an eventful journey

Source: The post “UPI — an eventful journey” has been created based on “UPI — an eventful journey” published in “DD News” on 26th August 2026.

UPSC Syllabus: GS-3-Indian Economy

Context: The **Unified Payments Interface (UPI)** was launched in **2016** with the objective of making money transfer as easy as sending a message. Over the last decade, UPI has emerged as the **world's largest real-time payment system by volume** and an important pillar of India's digital economy.

Foundations of UPI's Success

1. The **Digital India programme**, launched in 2015, created the broader foundation for a digitally connected economy.
2. **Jan Dhan accounts** expanded access to banking, while **Aadhaar** provided a digital identity layer and mobile connectivity expanded access to digital services.
3. India now has more than **108 crore internet users, 130 crore mobile subscribers and 145 crore Aadhaar holders**.
4. About **58.97 crore Jan Dhan accounts**, including **32.86 crore accounts held by women**, support financial inclusion.
5. More than **₹52 lakh crore** has been transferred through Direct Benefit Transfer, creating a strong foundation for digital financial services.

Growth of UPI

1. UPI processed about **2 crore transactions in FY 2016-17**, which increased to **24,162 crore transactions in FY 2025-26**.
2. The value of transactions increased from **₹0.07 lakh crore to ₹314 lakh crore** during the same period.
3. In the first four months of **FY 2026-27**, UPI processed **9,192 crore transactions worth ₹118 lakh crore**, including **2,366 crore transactions in July 2026**.
4. UPI accounts for around **84% of India's digital payment volumes** and serves more than **55 crore active users**.

Contribution to Financial Inclusion

1. Around **86% of merchant transactions** on UPI are below ₹500, showing its widespread use for small everyday payments.
2. Nearly **59% of person-to-person transfers** are also below ₹500, indicating that UPI is not limited to high-value transactions.
3. Person-to-merchant payments accounted for **15,231 crore transactions in FY 2025-26**, or about **63% of total UPI volume**.
4. Payment acceptance points increased from **0.31 crore in March 2018 to more than 81 crore by June 2026**, with around **80 crore being QR codes**.
5. QR-based payments have enabled **small merchants, street vendors and auto drivers** to participate in the formal digital economy.
6. Digital transaction records can help small businesses demonstrate cash flows and potentially **access formal credit**.

Robust UPI Ecosystem

1. The **DIGIDHAN Mission**, launched in 2017, promoted digital payment adoption across the country.
2. The **RBI's Payment Infrastructure Development Fund** supported payment acceptance infrastructure in Tier-3 to Tier-6 centres, the North-Eastern States and Union Territories.
3. UPI's **interoperable architecture** allows customers using one application to pay merchants using another application.
4. This open architecture has enabled banks and fintech companies to develop new services without creating separate payment infrastructure.

Global Significance

1. The **International Monetary Fund** has recognised UPI as the world's largest retail fast payment system by volume.
2. India accounts for nearly **half of global real-time payment transactions**.
3. UPI is operational in **11 countries**, including the UAE, France, Singapore, Nepal and Sri Lanka.
4. Agreements for UPI-like systems have also been signed with **Peru, Namibia and Trinidad and Tobago**.

5. India's experience is therefore becoming a model for countries developing their own **digital public infrastructure**.

Challenges

1. **Cybersecurity risks** may increase with the rapid expansion of digital payments and the growing use of UPI.
2. **Fraudulent and suspicious transactions** remain a concern, requiring continuous improvement in detection and prevention mechanisms.
3. **Digital literacy gaps** can make UPI difficult to use for first-time and less digitally experienced users.
4. **Grievance redressal** needs to become faster and more effective so that users can resolve failed or disputed transactions easily.
5. **System resilience** must be strengthened to ensure that UPI remains reliable during technical disruptions and periods of very high transaction volumes.
6. The benefits of digital payments must reach users who still face **barriers to formal financial services**.

Way Forward

1. **Consumer awareness** should be strengthened through wider digital and financial literacy initiatives.
2. **Grievance redressal mechanisms** should be made faster, simpler and more accessible.
3. Banks and payment providers should continue using **AI-based fraud detection** along with existing security measures such as device binding and PIN-based two-factor authentication.
4. UPI infrastructure should be continuously upgraded to improve **system resilience, reliability and security**.
5. UPI should be developed as a gateway to **credit, savings and insurance**, particularly for financially underserved sections.
6. India should continue promoting UPI and its interoperable digital public infrastructure model **globally**.
7. The next phase should ensure that UPI carries not only payments but also the **broader financial journey of every Indian**, supporting the vision of **Viksit Bharat by 2047**.

Conclusion: UPI has transformed digital payments from a primarily urban service into an important instrument of **mass financial inclusion**. Its success is reflected not only in transaction volumes but also in the **trust of small merchants and ordinary households**. As UPI enters its second decade, the focus should shift from merely expanding payments to building a **secure, resilient and inclusive financial ecosystem**, contributing to the vision of **Viksit Bharat by 2047**.

Question: UPI has evolved from a digital payment platform into a major public digital infrastructure in India. Discuss its contribution to financial inclusion and the challenges that need to be addressed in its next phase.

Source: [Business Line](#)

End the Culture of Secrecy in Judicial Appointments

UPSC Syllabus: Gs Paper 2- Judiciary

Introduction

The Collegium system was developed to protect **judicial independence** from executive interference. However, its functioning has raised concerns over **secrecy, unclear selection criteria and the absence of publicly intelligible reasons** for important decisions. Justice Ujjal Bhuyan's recent observations have renewed this debate. The central challenge is to preserve legitimate confidentiality while ensuring that judicial appointments follow a process that is **transparent, fair, objective and accountable**, thereby strengthening public confidence in the judiciary.

Evolution of the Collegium System

1. **Constitutional basis:** The Constitution does not expressly use or provide for a Collegium system.

- However, Articles 124 and 217 govern the appointment of Supreme Court and High Court judges, while Article 222 deals with the transfer of High Court judges.

2. First Judges Case, 1981: The Court held that consultation did not mean concurrence, giving the Executive primacy in judicial appointments.

3. Second Judges Case, 1993: A nine-judge Bench shifted primacy to the collective opinion of the Chief Justice of India and senior judges.

4. Third Judges Case, 1998: The Court expanded and clarified the Collegium system. For Supreme Court appointments and High Court transfers, the Chief Justice of India consults the four senior-most puisne judges.

5. National Judicial Appointments Commission: The Ninety-Ninth Constitutional Amendment created the National Judicial Appointments Commission (NJAC) to replace the Collegium system for judicial appointments.

6. National Judicial Appointments Commission judgment: In 2015, the Supreme Court struck down the Ninety-Ninth Constitutional Amendment and the NJAC, holding that the proposed system threatened judicial independence, which forms part of the basic structure.

7. Concerns despite judicial primacy: The judgment also recognised concerns about the Collegium's transparency, accountability and objectivity, showing that judicial primacy does not make the appointment process free from shortcomings.

Why Greater Transparency is Needed in Judicial Appointments

1. Lack of a clear selection framework: The process has no publicly known system for notifying vacancies, defining eligibility or assessing candidates.

2. Declining disclosure of reasons: In October 2017, the Collegium began publishing its resolutions along with brief reasons for recommending candidates for elevation.

- However, since November 28, 2024, the resolutions have stopped identifying the Collegium members who participated in the decision and no longer provide reasons for the decisions.

3. Need for reasoned decisions: Reasons show that relevant factors were considered, reduce arbitrariness and help distinguish principled selection from personal preference or proximity.

4. Protection of deserving candidates: Unexplained deferment, supersession or rejection can damage deserving judges and advocates, leaving their professional record without any public clarification.

5. Concerns about nepotism: Opaque appointments have strengthened concerns about "Uncle Judges", where relatives of serving or retired judges may receive an unfair advantage.

6. Evidence of familial links: In 2018, 11 of the 33 names recommended by the Allahabad High Court Collegium involved relatives of sitting or retired judges.

- A 2025 assessment also found that nearly 30%, or about 10 of 33 Supreme Court judges, had familial links to former judges.

7. Need for equal opportunity: Articles 14 and 16 guarantee equality and equal opportunity in public employment.

- In the *Umadevi* judgment, the Supreme Court held that public appointments should ordinarily follow a transparent procedure open to eligible candidates, raising questions about the absence of similar openness in judicial appointments.

8. Consistency with judicial standards: In *MediaOne*, the Supreme Court held that sealed-cover secrecy was against a transparent and accountable system.

- In *CPIO v. Subhash Chandra Agarwal*, it also held that the Chief Justice of India's office falls within the Right to Information Act..

9. Changing nature of public scrutiny: Judicial decisions and appointments now face immediate scrutiny on social media, making institutional secrecy increasingly difficult to sustain.

Why Complete Disclosure May Not Be Appropriate

1. Need for candid consultation: Collegium members need space for honest assessments without every preliminary view becoming a public controversy or personal dispute.

2. Protection of sensitive information: Intelligence and background inputs may involve confidential sources whose identity or information cannot always be publicly disclosed.

3. Protection of professional reputation: Publicly stating why a serving judge or advocate was rejected may harm their authority, dignity and future professional career.

4. Comparative nature of selection: Judicial appointments involve comparative assessment of merit, integrity, seniority, diversity, temperament and institutional needs, which cannot become a public ranking exercise.

5. Risk of external pressure: Complete disclosure may encourage lobbying, strategic media campaigns and litigation by candidates who are not selected.

6. Recording and publishing are different: Reasons should always be recorded, but their public disclosure can be limited by privacy, security and institutional necessity.

Lessons from Other Democracies

1. United Kingdom model: The Judicial Appointments Commission publicly advertises vacancies and uses a structured selection process, including interviews.

2. South African model: The Judicial Service Commission allows public nominations and conducts open and televised interviews of candidates.

3. Transparency and independence can coexist: These systems show that greater openness in selection does not automatically weaken judicial independence.

4. Public understanding builds legitimacy: Citizens are more likely to trust judicial institutions when they understand how judges are selected and what standards are applied.

Way Forward: Towards Structured Transparency

1. Expand existing transparency measures: The Collegium already publishes resolutions and some appointment-related information. This shows that transparency can be increased further while keeping confidential discussions and sensitive information protected.

2. Publish anticipated vacancies: The Collegium should disclose expected vacancies in advance and allow eligible advocates and judges to know about upcoming appointment opportunities.

3. Define clear selection criteria: Publicly stated criteria should cover **merit, integrity, professional competence, judicial temperament, constitutional values, diversity and institutional requirements**.

4. Adopt a structured assessment process: Verified professional information and clear assessment methods can reduce excessive dependence on informal knowledge, personal networks and subjective preferences.

5. Give concise reasons for recommendations: Positive recommendations should include brief, candidate-specific reasons based on judicial work, professional standing and institutional requirements.

6. Maintain confidential reasons for non-selection: Detailed reasons for deferment or rejection should be preserved internally, while a non-stigmatising public summary may be issued where possible.

7. Ensure fairness in adverse assessments: Serious adverse material should be verified and, where feasible, its substance should be communicated privately to the candidate, while protecting sensitive sources.

8. Disclose broad reasons for transfers: Transfer resolutions should state the broad institutional basis, such as **administrative necessity, public interest or better administration of justice**, without revealing sensitive details.

9. Create a permanent institutional mechanism: A judicial appointments secretariat should maintain verified professional records, while annual reports should disclose aggregate data on vacancies, recommendations, deferments, reiterations and delays.

10. Undertake timely institutional reform: The Collegium should address concerns through voluntary reform, as greater openness can strengthen **public confidence and institutional legitimacy**.

Conclusion

Judicial independence does not require complete secrecy, and transparency does not require disclosure of every confidential detail. The real choice is between **unexplained power and structured transparency**. A

clear process, known criteria, fair assessment and recorded reasons can protect both independence and accountability. Reforming the Collegium in this manner can strengthen **public confidence, institutional legitimacy and merit-based judicial appointments.**

Question for practice:

Examine the need for greater transparency and accountability in India's judicial appointment process while ensuring judicial independence and necessary confidentiality.

Source: [The Hindu](#)

The Limits of Air Power, Implications for Theatre-isation

UPSC Syllabus: Gs Paper3 - Security challenges and their management in border areas.

Introduction

Modern conflicts show that **air power remains important but cannot independently decide the outcome of a war.** Ukraine demonstrated how integrated air defences can deny control of the skies, while the Iran conflict showed that even air dominance may not achieve political objectives. Operation Sindoor further underlined the importance of networked systems and data integration. These lessons are important for India's debate on **operational flexibility, jointness and theatre-isation.**

Changing Nature and Limits of Air Power

1. **Networked and Integrated Warfare:** Modern air operations increasingly depend on data fusion and coordination between aircraft, airborne warning systems and ground-based sensors, rather than individual platforms alone.
2. **Multi-domain Nature of Air Operations:** Air power increasingly operates alongside electronic, cyber and other domains, making coordination across military capabilities more important.
3. **Denial of Airspace:** Ukraine showed that networked air defence can prevent a stronger air force from gaining control of the skies, despite its larger number of aircraft.
4. **Air dominance may not produce a decisive outcome:** In the United States–Iran conflict, control of the skies and precision strikes failed to force Iran into collapse or end its ability to retaliate.
5. **Air power cannot independently achieve political control:** The Iran conflict showed that air strikes can disrupt leadership and military assets, but cannot establish permanent control or independently remove a resilient regime.
6. **Unfavourable Cost Arithmetic:** Shahed-type drones cost about \$20,000–\$50,000, while interceptors can cost millions, allowing cheaper systems to impose disproportionate costs.

Implications for India's Security Challenges

1. **Integrated air defence cuts both ways:** India could deny China control of the skies through integrated air defence, but China could impose similar limits on India.
2. **Pakistan and China present different challenges:** Pakistan has limited strategic depth, while China can absorb losses and continue fighting because of its larger military capacity.
3. **A model tested mainly against Pakistan:** The Indian Air Force's (IAF) flexible and centralised approach has worked in Balakot and Operation Sindoor, but remains untested against China.
4. **Tighter balance of air power:** The Indian Air Force has around 460–520 combat aircraft, while the China Air Force has roughly 65 squadrons, giving China a larger pool of air power and increasing the pressure on India's limited aircraft.
5. **Mountain terrain restricts redeployment:** Fewer airbases and limited space for manoeuvre along the China front could reduce the IAF's ability to shift forces quickly.
6. **Importance of networked capabilities:** A conflict with China may depend not only on aircraft numbers, but also on India's ability to integrate fighters, sensors and warning systems.
7. **Cost pressures could increase against China:** Cheap drones and other systems could force India to use expensive interceptors and defensive assets on a much larger scale.

The Debate Between Operational Flexibility and Theatre-isation

1. **The case for centralised flexibility:** The IAF prefers centralised control to shift its limited air assets between sectors instead of permanently assigning them to fixed commands.
2. **Limits of flexibility on the China front:** Limited combat aircraft, difficult terrain and fewer airbases could restrict the IAF's ability to rapidly redeploy forces against China.
3. **Need for joint operational integration:** Modern warfare requires coordinated use of air, land and other capabilities through shared information and joint operations.
4. **A persistent gap in joint preparedness:** Kargil in 1999 and the Ladakh crisis in 2020 showed that joint force generation, shared planning and coordination remained insufficient.
5. **Institutional barriers to joint command:** Career progression concerns and uneven rank structures across the three services continue to leave important questions about joint command unsettled.
6. **From consultation to clear command authority:** The proposed Joint Coordination Centre depends on consensus, while a theatre command gives one commander authority to act quickly during a crisis.

Way Forward

1. **Strengthen joint force generation:** India should develop stronger joint force generation for the China front, where air power alone may not overcome the operational challenge.
2. **Build peacetime jointness:** The three services should strengthen joint training and shared planning before a crisis, as effective coordination cannot be created during war.
3. **Improve integration of military capabilities:** Aircraft, sensors, warning platforms and ground forces should operate through better information-sharing and coordinated planning.
4. **Resolve institutional barriers:** Issues related to career progression and uneven rank structures across the three services should be addressed to establish workable joint command arrangements.
5. **Create clear command and resource allocation:** A clear command structure should enable quick decisions on deploying limited assets such as Rafales and S-400 systems during simultaneous crises.
6. **Ensure reliable support to frontline forces:** An Integrated Battle Group commander along the Line of Actual Control should have clarity about the availability of air support when required.
7. **Preserve flexibility within theatre-isation:** Theatre-isation should provide greater jointness and unified command while allowing the Indian Air Force to retain operational flexibility.

Conclusion

Air power remains **essential, but recent conflicts show that air superiority alone cannot ensure military or political success**. For India, the larger challenge is to prepare its armed forces for a possible conflict with China through stronger integration, joint planning and clear command structures. **Theatre-isation should therefore combine greater jointness with the IAF's operational flexibility and improve preparedness before a crisis.**

Question for practice:

Discuss the changing nature and limits of air power and examine its implications for theatre-isation and joint military preparedness in India.

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 27th July 2026.

UPSC Syllabus: GS 3- Indian Economy

Context: India has developed two genome-edited rice varieties, **DRR Dhan 100 (Kamala)** and **Pusa Rice DST1**, using **SDN-1 genome editing**. Pusa Rice DST1 is expected to enter commercial production in the upcoming **rabi season**, with transplanting around November.

About the Two gene-edited rice varieties

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1. **Pusa Rice DST1** was developed by **ICAR-Indian Agricultural Research Institute (IARI), New Delhi** from the established **MTU1010** variety.
2. It targets the **Drought and Salt Tolerance (DST) gene** to improve the plant's ability to tolerate drought and salt-affected soils.
3. ICAR field trials reported **9.66% to 30.4% yield advantages over MTU1010** under different saline and alkaline conditions.
4. It is expected to be grown in **Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Kerala, Chhattisgarh, Odisha, Madhya Pradesh, Maharashtra, Jharkhand, Bihar, Uttar Pradesh and West Bengal**.
5. **DRR Dhan 100 (Kamala)** was developed by **ICAR-Indian Institute of Rice Research, Hyderabad** from the popular **Samba Mahsuri (BPT 5204)** variety.
6. Scientists edited a gene involved in **cytokinin metabolism** to increase the number of grains produced by each panicle.
7. Kamala matures in about **130 days**, around **20 days earlier than Samba Mahsuri**, and has a stronger stalk that is less prone to lodging.

Importance of these varieties

1. They aim to **increase rice production** while reducing the pressure of rice cultivation on **water and the environment**.
2. Pusa DST1 can improve rice cultivation in **drought-prone and salt-affected soils**.
3. Kamala's shorter duration can contribute to **resource-use efficiency and climate resilience**.
4. Kamala also has a **stronger stem**, reducing the risk of lodging.
5. Thus, both varieties are intended to make rice cultivation more **climate-resilient**.
6. They are developed by making **targeted changes in existing rice varieties**, rather than creating completely new plants from scratch.

Gene editing vs GM crops

1. Both technologies alter the DNA of plants, but they differ mainly in the **nature of the genetic change and the presence of foreign genetic material**.
2. Traditional **transgenic GM crops** involve insertion of genetic material from another organism into the plant.
 - a. For example, **Bt cotton** contains genes derived from *Bacillus thuringiensis*, enabling it to produce proteins toxic to certain pests.
3. **Genome editing** can instead make a targeted change in a gene already present in the plant.
 - a. **SDN-1** disrupts a target gene through small insertions or deletions produced during repair of a targeted DNA break.
 - b. **SDN-2** uses a repair template to introduce a specific small change in the plant's DNA.
 - c. **SDN-3** can introduce a new genetic sequence and therefore remains outside the exemption available to SDN-1 and SDN-2.
4. In **2022**, India amended its guidelines and exempted SDN-1 and SDN-2 modifications from the same rigorous process applicable to SDN-3 plants, provided the relevant plants are **free of transgenes**.
5. Both new rice varieties have been developed through **SDN-1 genome editing**.

Concerns associated with gene-edited rice

1. The absence of foreign genes does not by itself complete the scientific assessment of a gene-edited crop.
2. Questions have been raised about whether the publicly available evidence sufficiently explains the **mechanism behind the reported yield gains**.
3. There are concerns about whether the claimed advantages will remain consistent across **different environments and locations**.

4. Large yield improvements across diverse locations could potentially involve **trade-offs in other traits**.
5. Unintended mutations may alter patterns of gene function and could potentially cause unintended biochemical changes.
6. Such unintended changes in food crops could include the production of **unexpected toxins or allergens** or changes in **nutritional value**.
7. Wider availability of the underlying scientific evidence would enable greater **independent scientific scrutiny** of the reported benefits and mechanisms.

Biosafety assessment and regulatory experience

1. The government states that the varieties underwent **biosafety scrutiny**.
2. They were assessed for the **absence of foreign DNA**, stability of mutations and robustness of the phenotype.
3. They were tested at **more than 50 locations each during 2023 and 2024**.
4. Unlike GM crops, gene-edited seeds are stated to be similar to normal seeds in the sense that farmers need to purchase them **only once or when required**, rather than necessarily purchasing new seeds every season.
5. **Bt cotton remains India's only GM crop approved for commercial cultivation**, with GEAC approval in 2002.
6. **Bt brinjal** cleared the regulatory process in 2009 but was not approved for commercial cultivation.
7. **GM mustard** received conditional environmental clearance from GEAC, but became involved in a Supreme Court case.
8. Concerns around GM mustard include possible effects on **honeybees** and implications for organic honey exports to the US and EU, where strict non-GMO certification is required.

Global developments

1. Regulators in several countries are increasingly distinguishing **transgene-free gene-edited crops** from conventional GMOs.
2. The **US and Canada** have allowed products such as gene-edited anti-browning potatoes and high-oleic soybeans.
3. **Japan** has approved gene-edited foods such as high-GABA tomatoes.
4. The **UK's 2023 Precision Breeding Act** created a separate regulatory pathway for gene-edited crops.
5. The **EU adopted a new framework in July 2026** for plants developed using New Genomic Techniques, under which Category 1 crops involving changes that could occur naturally are exempted from stricter GMO rules.
6. This EU framework is expected to be **fully implemented by 2028**.

Conclusion: India's gene-edited rice represents an attempt to combine **higher productivity, climate resilience and efficient resource use**. Pusa DST1 focuses particularly on **drought and salinity tolerance**, while Kamala focuses on **higher grain production, shorter duration and stronger stems**. However, commercial introduction should be accompanied by **robust biosafety assessment, transparent scientific evidence and wider scientific scrutiny** to ensure that the claimed benefits are sustained without unintended consequences.

Question: With reference to India's gene-edited rice varieties, discuss their significance, the distinction between gene editing and GM crops, and the concerns associated with their introduction.

Source: **Business Line**

Why India could shape the next global financial order

Source: The post "Why India could shape the next global financial orders" has been created based on "Why India could shape the next global financial order" published in "The Hindu" on 27th July 2026.

UPSC Syllabus: GS 3- International Relations

Context: The **international financial architecture** consists of institutions, rules and practices that govern global capital and international finance. For decades, this architecture was largely dominated by the **Global North**, with institutions such as the **International Monetary Fund (IMF)** and the **World Bank** at its centre. Changing global economic power and the growing importance of emerging economies are now creating a **more multipolar international financial order**. India has the potential to play an important role in shaping this emerging order, particularly in the area of **global green finance**.

Reason behind the existing international financial architecture being under strain

1. The traditional financial architecture was designed largely under the influence of the developed world and does not fully reflect the **current distribution of global economic power**.
2. The existing system is increasingly struggling to meet the huge financing requirements associated with the **Sustainable Development Goals (SDGs)**.
3. The **escalating climate crisis** has created an additional need for large-scale and accessible climate and green finance.
4. Developing and emerging economies require greater financial resources to pursue development while simultaneously responding to climate change.
5. Therefore, there is a need to reshape global financial institutions and practices according to the **changing needs of the global economy**.

Emergence of a multipolar global financial order

1. The international financial system is no longer the exclusive preserve of Western powers.
2. The rise of **China, Brazil and India** has increased the economic and political weight of emerging economies.
3. Their growing influence is introducing new perspectives into global economic governance.
4. The emerging order is therefore becoming increasingly **multipolar**, with greater scope for emerging economies to influence global financial rules and institutions.

Changing role of traditional global powers

1. The transformation is also being accelerated by a perceived **withdrawal of traditional leaders, particularly the United States, from important global commitments**.
2. This includes commitments relating to the **Sustainable Development Goals, the UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement**.
3. Such developments have created greater space for other major economies to provide leadership on global development and climate-related issues.
4. This changing leadership landscape can accelerate the transition towards a more diversified global financial order.

Importance of green finance in the emerging order

1. The achievement of the **SDGs** requires enormous financial resources, particularly in developing countries.
2. Climate change has further increased the requirement for investment in **sustainable and climate-resilient development**.
3. The international financial system therefore needs to mobilise greater capital towards **green and sustainable projects**.
4. Green finance can help reconcile the twin objectives of **economic development and environmental sustainability**.
5. The restructuring of international finance provides an opportunity to make global capital flows more responsive to the climate and development requirements of emerging economies.

Ways in which India can shape the next global financial order

1. Greater representation of the Global South

- a. India can use its growing economic and diplomatic influence to advocate for a financial architecture that gives **greater voice to developing and emerging economies**.
- b. It can push for international institutions to better reflect the contemporary distribution of global economic power.

2. Leadership in global green finance

- a. India can position itself as an important leader in designing mechanisms for **global green finance**.
- b. It can advocate for greater availability of climate finance for developing countries.
- c. India can help ensure that the transition towards a green economy does not undermine the **developmental priorities of emerging economies**.

3. Bridging development and climate objectives

- a. India occupies an important position because it has to pursue rapid economic development while also addressing climate change.
- b. Its experience can help build financial mechanisms that combine **developmental needs with climate action**.
- c. India can therefore contribute to making global green finance more relevant to the realities of developing economies.

4. Strengthening a multipolar financial system

- a. **India can work with other emerging economies** such as **China and Brazil** to promote a more inclusive international financial architecture.
- b. Greater participation of emerging economies can make global financial governance more representative and responsive.
- c. India can contribute to moving the system from a predominantly **Global North-led model towards a more balanced multipolar framework**.

5. Using its growing global influence

- a. India's increasing economic and political importance gives it greater ability to influence international discussions on finance, development and climate change.
- b. This provides an opportunity for India to move beyond being a recipient of global financial arrangements and become a **rule-shaper in the emerging global financial system**.

Key challenges

1. The transition towards a multipolar financial architecture may face resistance from **established powers and institutions**.
2. Differences in the priorities of developed and developing countries can complicate the creation of common financial mechanisms.
3. There is a continuing challenge of mobilising sufficient finance for the **SDGs and climate action**.
4. Developing economies need access to finance without compromising their **developmental priorities**.
5. The effectiveness of India's leadership will depend on its ability to build **coalitions with other emerging and developing economies**.

Way Forward

1. International financial institutions should become more representative of the **changing global economic balance**.
2. Greater financial resources should be mobilised for the **SDGs and climate action**.
3. Emerging economies should receive a stronger role in determining the rules and priorities of global financial governance.
4. Green finance mechanisms should address both **climate requirements and developmental needs**.
5. India should work with other countries of the **Global South** to promote a more inclusive, sustainable and multipolar financial architecture.

Conclusion: The global financial order is moving from a predominantly **Global North-dominated architecture towards a more multipolar system**. The rise of emerging economies and the changing

commitment of traditional powers are accelerating this transformation. India, with its growing global influence and its position between the developmental and climate imperatives, can play a **vanguard role in shaping global green finance**. A more representative international financial architecture can help align global capital with the twin goals of **sustainable development and climate action**.

Question: The global financial architecture is undergoing a shift towards a more multipolar order. Discuss the factors behind this transformation and examine how India can shape the emerging global financial order, particularly in the context of green finance.

Source: [The Hindu](#)

The High Cost of India's Private Health-Care Boom

UPSC Syllabus: Gs Paper 2- Issues relating to development and management of Social Sector/Services relating to Health

Introduction

India's private health-care expansion has improved access to specialised treatment, advanced technology and tertiary care, but it has also created a serious affordability gap. Treatment in private hospitals costs far more than in public facilities, while many public hospitals still lack adequate specialists, diagnostics, medicines and infrastructure. The challenge is therefore not only to control rising private health-care costs, but also to balance private investment, effective regulation, health-care financing and stronger public provision.

Current Status of Health-Care Costs and Financing in India

1. **Rapid rise in health-care costs:** Health-care costs increased by 105% during 2012–25, exceeding the 98% rise in consumer prices over the same period.
2. **Growing per capita health expenditure:** Nominal per capita health expenditure rose by around 75% to ₹6,373 by 2022–23, although the real increase was about 20%.
3. **Sharp public-private cost gap:** Average hospitalisation costs ₹50,508 in private hospitals, almost eight times the ₹6,631 charged in public hospitals.
4. **High childbirth expenses in private facilities:** Average out-of-pocket expenditure for childbirth is ₹37,630 in private facilities, compared with only ₹2,299 in public facilities.
5. **Reduced out-of-pocket share:** Out-of-pocket expenditure fell from 64.2% in 2013 to 43.4% in 2023, as government and insurance spending increased.
6. **Greater role of government and insurance:** Government spending rose from 28.6% to 43.7%, while social security and private insurance spending also increased during 2013–23.
7. **Change in payer, not necessarily in costs:** Lower out-of-pocket spending mainly shows that others are paying more, not that health-care services have become cheaper.
8. **Large differences across States:** Per capita expenditure ranged from ₹2,189 in Bihar to ₹13,116 in Kerala, reflecting differences in income, disease burden and public services.

Why Is Private Health Care Becoming Increasingly Expensive?

1. **High cost of hospital infrastructure:** Land, advanced equipment, intensive care units, laboratories, digital systems and trained personnel require substantial and continuous investment.
2. **Expensive specialists and premium facilities:** Corporate hospitals compete for senior specialists, sophisticated technology and premium infrastructure, creating a high-cost treatment ecosystem.
3. **Pressure to recover investment:** Hospitals facing high salaries, costly equipment and investor expectations may seek higher revenues to recover their operating and capital costs.
4. **Revenue-linked institutional incentives:** Revenue targets, procedure-linked incentives, higher occupancy expectations and greater revenue per bed can influence institutional behaviour.
5. **Limited public capacity increases dependence:** Public hospitals cannot meet the full demand for secondary and tertiary care, forcing many patients towards costly private providers.

6. **Investment remains necessary:** Private equity, foreign investors and other private players can provide capital, technology and managerial capacity to expand hospital networks.

What Are the Major Challenges of India's Private Health-Care Boom?

1. **Patients face information asymmetry:** Doctors and hospitals know more than patients, who usually cannot independently judge whether tests, procedures or longer admission are necessary.
2. **Risk of excessive medicalisation:** Financial incentives can encourage more tests, follow-up investigations, hospital admissions and medicines than a patient may actually require.
3. **Clinical decisions may be shaped by incentives:** Procedures such as Caesarean sections, angioplasties and intensive-care admissions need safeguards where systems reward higher intervention volumes.
4. **Investment may create market concentration:** Acquiring existing hospitals can reduce competition and raise pricing risks without necessarily adding new beds or health-care capacity.
5. **Growth remains concentrated in profitable markets:** Investors may add high-end facilities in metropolitan areas instead of expanding services in underserved districts and rural regions.
6. **Public concessions may lack clear obligations:** Investors receiving concessional land, tax benefits or other support may need enforceable duties regarding affordable beds or public insurance participation.
7. **Patients face a difficult service choice:** They often choose between under-resourced public facilities and private hospitals that provide advanced care at a much higher cost.

Limitations of the Existing Health-Care Financing and Insurance Model

1. **Insurance changes who pays, not the cost of care:** Rising government and insurance spending has reduced out-of-pocket expenditure, but health-care costs themselves continue to rise.
2. **Fee-for-service payments can increase treatment volumes:** When providers are paid for individual services, financial incentives may encourage more procedures, tests and other billable treatments.
3. **Provider and insurer incentives remain misaligned:** The conventional insurance model can create cost-inflating incentives because providers benefit from more treatment while insurers seek to control expenditure.
4. **Insurance does not ensure affordable or adequate care:** Without strong public provision and regulation of private providers, expanded insurance can transfer public funds to private hospitals without reducing costs.
5. **Outpatient expenses remain insufficiently covered:** Consultations, medicines and diagnostic tests form a large part of household spending, making their exclusion a major gap in health protection.
6. **Alternative financing models need to be explored:** Cooperative facilities and the Accountable Care model can better align provider incentives with prevention, early treatment and lower curative costs.

What Has the Parliamentary Standing Committee Recommended?

1. **Standardised treatment package rates:** Rationalised package rates can bring greater uniformity to hospital charges while reflecting the actual operating costs of treatment.
2. **Mandatory price disclosure before treatment:** Patients should receive clear cost estimates and full price information at admission to prevent unexpected or excessive billing.
3. **Regulation of routine procedures and diagnostics:** Capping charges for selected procedures and diagnostic services can help curb arbitrary pricing in private health care.
4. **Cross-subsidisation by large corporate hospitals:** Hospitals earning from medical tourism, foreign patients and wealthy individuals should support poorer patients through affordable treatment.

5. **Regulated beds for public insurance beneficiaries:** Large private hospitals should reserve beds at regulated rates for Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana beneficiaries.
6. **Review of foreign investment in hospital acquisitions:** Foreign direct investment rules should be examined where acquisition of existing hospitals may reduce competition or increase excessive pricing.
7. **Stronger public health infrastructure:** Public facilities should expand capacity, recruit specialised personnel and follow Indian Public Health Standards for reliable services.
8. **Better protection against excessive billing:** A fast-track ombudsman, uniform adoption of the Clinical Establishments (Registration and Regulation) Act, 2010, and tiered quality assurance have been proposed.

Why Are These Measures Not Sufficient on Their Own?

1. **Room tariff caps cannot control total treatment costs:** Capping room charges addresses only one part of the bill and may not make the overall treatment affordable.
2. **Hospitals may shift costs to other services:** If one component is capped, hospitals can increase charges for diagnostics, procedures or other services to recover revenue.
3. **Hotel-based tariff comparison has limitations:** Hospital rooms include nursing, infection-control and emergency support, making direct comparison with three-star hotel tariffs incomplete.
4. **Price regulation needs strong enforcement:** Package rates and price caps require transparent cost data, independent audits, credible benchmarks and penalties to prevent evasion.
5. **Overly restrictive investment rules may affect capacity expansion:** Unpredictable regulation can discourage private and foreign investment and slow the expansion of needed health-care infrastructure.

Way Forward

1. **Focus on the total treatment cost:** Package rates, transparent estimates, standardised billing and audit mechanisms should regulate the full cost of care.
2. **Use Diagnosis-Related Groups for hospital payments:** Diagnosis-Related Groups can provide predetermined payments based on diagnosis and procedures instead of paying separately for every service.
3. **Encourage greenfield investment in underserved areas:** India should support new hospitals and medical manufacturing while scrutinising acquisitions that reduce competition or raise pricing risks.
4. **Link public support with affordability obligations:** Investors receiving public concessions can be required to provide affordable beds or participate in public insurance schemes.
5. **Make public hospitals a credible alternative:** Public facilities need specialists, diagnostics, medicines, modern amenities and cashless treatment for insured patients.
6. **Strengthen primary and preventive care:** Early detection and treatment can reduce dependence on expensive hospital care and prevent diseases from becoming more serious.
7. **Align insurance with appropriate treatment:** Schemes, including Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana, should reward necessary and appropriate care rather than higher procedure volumes.
8. **Invest in wider determinants of health:** Safe drinking water, nutrition, women's education, clean air, hygiene and physical activity can reduce future demand for curative treatment.
9. **Increase and better distribute public spending:** Public investment must rise without shifting excessive responsibility to fiscally weaker States, which could widen regional inequalities.
10. **Integrate all parts of health-care reform:** Investment, staffing, medicines, referral systems, insurance design and price regulation must progress together for lasting affordability.

Conclusion

India must balance **private investment, effective regulation and stronger public health care**. Price caps and insurance expansion alone cannot control rising costs or ensure affordable treatment. Public investment must create reliable health-care alternatives, while financing and regulation should align provider incentives with patient needs. The ultimate goal should be a system where every citizen receives **necessary, appropriate and affordable care**.

Question for practice:

Discuss the key factors behind the rising cost of private health care in India and the measures needed to make health care more affordable.

Source: [The Hindu](#); [epw](#)

Making India's Food System Climate-Proof Cannot Wait

UPSC Syllabus: Gs Paper 3- issues of buffer stocks and food security

Introduction

India has moved from **food-aid dependence in the 1960s** to becoming a major food producer. This achievement is supported by strong buffer stocks and the **National Food Security Act (NFSA), 2013**, which provides subsidised foodgrains to around **800 million people**. Climate change and wider disruptions now threaten these gains through rising temperatures, erratic rainfall, extreme weather and supply-chain risks. India must ensure an **affordable, nutritious and climate-resilient food supply** for its **1.4 billion people**.

Why Does India Need to Climate-Proof Its Food System?

1. **Heat stress and lower crop yields:** Rising temperatures can reduce **wheat yields**, while climate variability can disrupt monsoons, reduce agricultural output and increase pressure on water resources.
2. **Erratic monsoons and extreme events:** Unpredictable rainfall can cause **floods and droughts within the same season**, creating serious uncertainty for agricultural production.
3. **Groundwater depletion:** Falling groundwater levels weaken irrigation buffers and make agricultural production more vulnerable when rainfall becomes unreliable.
4. **Risks across the food chain:** Extreme weather and other disruptions can affect **production, storage, transport, fertiliser supplies and agricultural trade**, creating wider food-security risks.
5. **Market volatility and food access:** Disruptions across food supply chains can increase market volatility and limit access to **affordable and nutritious food**, especially for vulnerable populations.
6. **Concentration of production:** Heavy dependence on a few crops, regions or production models increases vulnerability to **climate, economic and supply disruptions**.

India's Existing Strengths and Opportunities

1. **High foodgrain production:** India produced **more than 350 million tonnes of foodgrains in 2024–25**, including record output of rice and wheat.
2. **Large food security coverage:** The **NFSA, 2013** provides a legal entitlement to subsidised foodgrains for around **800 million people**.
3. **Strong institutional foundation:** Public investment in improved seeds, irrigation, procurement, storage, price support and distribution has created a strong food-security base.
4. **Established distribution system:** The **Public Distribution System (PDS)** provides an extensive mechanism for delivering food entitlements across the country.
5. **Digitisation and portability:** Digitisation and the **One Nation One Ration Card (ONORC)** have expanded the reach and portability of food entitlements.
6. **Support for farmers:** **PM-KISAN** has provided direct benefit transfers to more than **110 million farming households**, strengthening farmer and food-system resilience.

7. **Experience with climate-resilient crops:** India's promotion of the **International Year of Millets in 2023** has drawn greater attention to millets as climate-resilient and nutrient-rich crops.
8. **Capacity for wider cooperation:** India's investments in food systems, digital public infrastructure and climate-adaptive agriculture provide experience that can also support wider cooperation.

Building a Climate-Resilient Food System

A. Diversifying Crops, Production and Procurement

1. **Diversifying procurement:** Procurement should gradually expand across crops and geographical regions to reduce dependence on a limited production base.
2. **Climate-suitable price support:** Price support should encourage crops suited to local **water availability and climate conditions**, reducing pressure on stressed resources.
3. **Promoting climate-resilient crops: Millets, pulses, oilseeds and other nutri-cereals** can reduce risk concentration while improving dietary diversity and climate resilience.
4. **Reducing dependence on single models:** Food security should not rely excessively on one crop, production model or supply source, as such dependence increases vulnerability to disruptions.
5. **Maintaining essential cereals:** Rice and wheat will remain important, but a broader production and procurement base can create a more **resilient food portfolio**.

B. Diversifying the Food Basket

1. **Including locally suitable foods:** The PDS can gradually include **locally appropriate millets and pulses** along with existing foodgrains.
2. **Linking food security with sustainability:** A diversified food basket can connect **nutrition, water conservation and climate adaptation** with food security.

C. Using Climate Information and Early Warning

1. **Climate-informed food decisions:** Forecasts from the **India Meteorological Department (IMD)** can guide procurement, buffer-stock management and contingency decisions.
2. **Monitoring climate-related risks:** The NFSA monitoring framework can include **heat stress, water stress, storage exposure and supply-chain resilience** alongside coverage and offtake.
3. **Broader supply-chain assessment:** Early-warning systems can also assess disruptions affecting **food, fertilisers, fuel and logistics**, allowing quicker responses to food-system risks.

D. Strengthening Farmers Against Climate Risks

1. **Climate-resilient farming tools:** Climate-resilient seeds, micro-irrigation, watershed development, precision farming and digital advisories can reduce production variability.
2. **Access to critical farm inputs:** Predictable and affordable access to **fertilisers, quality seeds, technology and concessional finance** can strengthen agricultural resilience.
3. **Weather-based insurance: Weather-indexed insurance** can help farmers manage climate-related risks and support better decisions under uncertain weather conditions.
4. **Support for small and marginal farmers:** Public safety nets and targeted support can ensure that **smallholders and climate-exposed regions** are not left behind.
5. **Research and last-mile delivery:** Public-private collaboration can accelerate research, certification and the delivery of climate-related technologies and services to farmers.

E. Building Climate-Resilient Storage and Supply Chains

1. **Flood-resilient warehouses:** Storage infrastructure should withstand floods and extreme weather to protect foodgrains and other agricultural products.
2. **Heat-suitable storage:** Storage systems suited to **higher temperatures** are needed to reduce risks to foodgrains and perishables.
3. **Expanded cold chains:** Stronger cold-chain infrastructure is necessary to protect perishables as the national food basket becomes more diverse.
4. **Robust transport and logistics:** Better transport, logistics and supply chains can reduce disruptions in food movement caused by climate and other shocks.

5. **Diversified supply chains:** Strengthening domestic production and diversifying supply chains can reduce dependence on vulnerable external sources.
6. **Adaptation across the value chain:** Climate adaptation should cover **procurement, storage, logistics and market stabilisation**, rather than focusing only on agricultural production.

F. Financing and Coordinating the Transition

1. **Climate-resilient finance:** **Green bonds, adaptation finance, insurance and investment** in resilient agricultural value chains can support the required transformation.
2. **Affordable development finance:** Access to concessional finance can help developing agricultural systems invest in climate adaptation and stronger food production.
3. **Integration with climate goals:** Food systems can be linked with India's **net-zero pathway** through measurable emission reduction, carbon sequestration and resilience targets.
4. **Coordinated policy action:** Agriculture, water, energy, transport and nutrition should work together to support a coordinated climate-resilient food system.

Towards Sustainable Food Security

1. **Building a broader "climate buffer":** Like traditional buffer stocks that reduce poor-harvest risks, diversified crops and regions, resilient infrastructure, climate information, insurance and water management can reduce systemic climate risks.
2. **Embedding climate risk in food policy:** Climate risk management should become a **core design factor** in NFSA planning and monitoring rather than being addressed only after disruptions occur.
3. **Strengthening domestic and supply resilience:** Resilient domestic production, diversified supply chains and reliable access to key agricultural inputs can protect food systems from wider shocks.
4. **Moving towards sustainable food security:** India should shift from **"food security" to "sustainable food security"** by combining resilience, nutrition, water management and long-term sustainability.

Conclusion

Climate-resilient food and nutrition security is the **logical next phase of India's food security journey**, not a departure from it. India already possesses the institutions, production capacity and policy framework needed for this transition. The priority is to embed **climate risk management and supply resilience** across production, procurement, infrastructure and distribution, ensuring a **nutritious, sustainable and resilient food system** for the future.

Question for practice:

Examine the need and key measures for making India's food system climate-resilient and sustainable.

Source: [The Hindu](#)

India's return to its Central Asian neighbourhood

Source: The post **"India's return to its Central Asian neighbourhood"** has been created based on **"India's return to its Central Asian neighbourhood"** published in **"The Hindu"** on 28th July 2026.

UPSC Syllabus: GS-2-International Relations

Context: Central Asia is an important part of India's extended neighbourhood, despite the lack of direct overland connectivity. India shares deep **civilisational, cultural, religious, linguistic and architectural links** with the region. Prime Minister Narendra Modi's upcoming visit to **Uzbekistan** and participation in the **SCO summit in Bishkek, Kyrgyzstan**, reflect India's renewed focus on Central Asia.

India's Engagement with Central Asia

1. **2015:** Prime Minister Modi's visit to all five Central Asian countries marked a historic shift from India's earlier policy of largely deferring to Russia in its neighbourhood.
2. **2017:** India became a full member of the **Shanghai Cooperation Organisation (SCO)**.

3. **2022:** India invited all Central Asian leaders as chief guests for Republic Day to mark 30 years of their independence and diplomatic ties. Although the event was held virtually due to COVID-19, it led to stronger institutional mechanisms such as the **India-Central Asia Dialogue**.
4. India has also explored **alternative rail and road connectivity routes through Iran and Afghanistan**.

Significance of Central Asia for India

1. Strategic and geopolitical importance

- a. Central Asia lies between **Russia and China**, making it strategically important for India.
- b. As Russia's influence weakens and China's influence grows, countries of the region are increasingly looking for partners beyond these two powers.
- c. India can strengthen its **strategic presence and diplomatic influence** in the region.

2. Civilisational and cultural links

- a. India has historical connections with Central Asia through **culture, religion, language and architecture**.
- b. Geographically, India and Tajikistan are separated only by the narrow **Wakhan Corridor in Afghanistan**.
- c. India's plural, moderate and democratic model is admired in the region.

3. Economic and trade opportunities

- a. India can expand cooperation in **trade, economic development and natural resources**.
- b. The region's diverse resource endowments provide opportunities for stronger economic partnerships.
- c. Better connectivity can further facilitate India's trade and economic engagement.

4. Security and counter-terrorism

- a. Central Asian countries face challenges from **radicalisation, terrorism and instability emanating from Afghanistan**.
- b. Uzbekistan has adopted a strong approach against terrorism and extremism.
- c. Its knowledge of Afghanistan and pragmatic approach towards the **Taliban** are important for India.
- d. Cooperation with Central Asian states can strengthen India's regional security interests.

5. Connectivity

- a. The absence of direct overland connectivity remains a major challenge.
- b. India needs to revisit alternative connectivity routes through **Iran and Afghanistan** in light of recent developments.
- c. Improved connectivity can strengthen India's economic and strategic presence.

Importance of Uzbekistan

1. Uzbekistan is among the **most dynamic countries in Central Asia** and is actively diversifying its foreign relations.
2. India-Uzbekistan relations have steadily improved under President **Shavkat Mirziyoyev** since 2016.
3. Uzbekistan's geographical position, counter-terrorism efforts and understanding of Afghanistan make it particularly important for India.

Importance of the SCO

1. The SCO originated from the **Shanghai Five in 1996** and has expanded to **10 members, 15 dialogue partners and 2 observers**.
2. India's engagement with the SCO is driven mainly by **geography rather than ideology**.
3. India faces the challenge of negotiating within the SCO in the context of the **China-Pakistan alignment**.
4. India has nevertheless promoted cooperation in **economic, technological and civilisational fields**.
5. At Tianjin, Prime Minister Modi presented the vision of **security, connectivity and opportunity** for the SCO.

6. For countries such as Kyrgyzstan, which are heavily dependent on China, India can provide an additional **geopolitical and economic option**.

Challenges

1. **China's growing influence** and Russia's traditional presence create a complex geopolitical environment.
2. **Border, water and ethnic disputes** among Central Asian countries complicate regional relations.
3. Instability and extremism emanating from **Afghanistan** remain security concerns.
4. Lack of direct **overland connectivity** limits India's economic engagement.
5. India must also navigate the **China-Pakistan dyad within the SCO**.

Way Forward

1. India should consolidate its position in Central Asia through greater cooperation in **economy, trade, defence, natural resources and technology**.
2. It should also expand **cultural, educational, health and tourism exchanges**.
3. India should strengthen alternative connectivity routes through **Iran and Afghanistan**.
4. Greater engagement with Central Asian countries can help India balance the growing influence of China and strengthen its wider **Eurasian presence**.

Conclusion: Central Asia is not merely a geographically distant region but an important part of **India's civilisational and strategic neighbourhood**. India's renewed engagement provides an opportunity to deepen **strategic presence, economic ties and diplomatic influence** while contributing to regional security and connectivity.

Question: India's engagement with Central Asia is driven by strategic, economic, security and civilisational interests. Discuss the significance of India's renewed engagement with the region.

Source: [The Hindu](#)

Danger from Above: On the Nepal Flood

UPSC Syllabus: Gs Paper 3- Disaster, and disaster management

Introduction

The devastating flash floods along the Nepal-Tibet border show the growing danger of disasters originating in the high Himalayas. The event was initially linked to an earthquake or rainfall, but satellite evidence pointed towards a **glacial collapse or ice-rock avalanche**, followed by destructive downstream flooding. It highlights the risks from unstable glaciers, debris blockages, glacial lakes and vulnerable infrastructure in a rapidly warming Himalayan region.

Nepal Flood Disaster: Causes and Sequence of Events

1. **Glacial collapse as the trigger:** Satellite imagery and scientific assessments indicate that a **glacier collapse or ice-rock avalanche** triggered the destructive flood, while the seismic event resulted from the collapse.
2. **Possible river blockage and breach:** Ice, rock and sediment may have temporarily blocked the river before accumulated water broke through, intensifying downstream flooding.
3. **Rapid spread through river valleys:** The flood entered the **Lhunde Khola**, flowed into the **Bhote Koshi**, and then travelled south through the Trishuli river system.
4. **Sudden rise in water level:** Water in the **Trishuli River reportedly rose by about 9 metres within 30 minutes**, showing the extreme speed of the flood.
5. **Human and infrastructure losses:** The disaster caused **hundreds of deaths and many missing persons**, while settlements, hydropower and monitoring infrastructure suffered extensive damage.
6. **Continuing secondary flood risk:** A newly formed barrier lake upstream created fears of another breach and further flooding in downstream areas.

Glacial Collapse and the Chain of Himalayan Hazards

1. **Meaning of glacial collapse:** It involves the detachment of a large mass of glacier ice, often carrying rock, sediment and water, from its bed.
2. **Different forms of failure:** Such gravity-driven events can include glacier detachments, ice avalanches and rock-ice avalanches on steep mountain slopes.
3. **Transformation into debris flows:** The collapsed material can move rapidly downhill as an ice-rich avalanche or a highly destructive debris flow.
4. **High-altitude fall:** Satellite observations suggested that part of the glacier broke off at about 5,200 metres and fell roughly 1,200 metres into the valley.
5. **Role of melting snow:** Available imagery indicated that a substantial amount of snow may have melted during the 24 hours before the disaster.
6. **Barrier lake formation:** Landslide and avalanche debris can block mountain rivers, creating temporary lakes that store large volumes of water.
7. **Sudden barrier failure:** When such blockages fail, stored water, mud, rock and debris can surge downstream as a catastrophic flood.
8. **Difficulties in escape:** High-speed flows of mud and water leave very little time for evacuation and can overwhelm roads and vehicles.

Glacier-Related Disasters: Evidence from the Himalayas and Beyond

1. **South Lhonak Lake disaster:** In October 2023, a Glacial Lake Outburst Flood in Sikkim released water, debris and rock, severely damaging the State's largest hydropower project.
2. **Long-term build-up of risk:** Subsequent analysis showed that the South Lhonak disaster had developed over several years rather than appearing suddenly.
3. **Aru glacier collapses in Tibet:** In 2016, two major glacier collapses released about 68 million and 83 million cubic metres of ice, killing people and animals.
4. **Sedongpu Basin events:** Ice-rock avalanches in 2018 blocked the Yarlung Tsangpo River, creating a dangerous temporary lake and downstream flood threat.
5. **Bukadaban Feng collapse:** In 2022, around 40 million cubic metres of glacier ice detached and generated a 13-metre-high wave after entering a lake.
6. **Ronti Peak disaster:** In 2018, about 27 million cubic metres of rock and glacier ice collapsed in Uttarakhand, killing more than 200 people.
7. **Rare but serious events:** Glacial collapses remain unusual and site-specific, but Tibet has emerged as a location of several major documented collapses.
8. **Risk beyond the Himalayas:** The Blatten collapse in Switzerland also showed how combined rock, soil and ice failures can destroy settlements.

Climate Change and Increasing Himalayan Cryosphere Risks

1. **Rapid glacier loss:** Glaciers across the Hindu Kush Himalaya lost ice 65% faster between 2011 and 2020 than during the previous decade.
2. **Shrinking glaciers in Nepal:** Nepal's glaciers lost close to one-third of their ice volume in roughly three decades, according to United Nations estimates.
3. **Glacial retreat and instability:** Rising temperatures can increase glacier retreat, alter mountain slopes and contribute to conditions favourable for glacier-related hazards.
4. **Permafrost reduction:** Warming can reduce permafrost, weakening high-altitude slopes and increasing the possibility of landslides and ice-rock failures.
5. **Growing danger of glacial lakes:** Melting glaciers can create or enlarge glacier-fed lakes, increasing the risk of Glacial Lake Outburst Floods (GLOFs).
6. **More heat-related pressures:** There is high confidence that increasing heatwaves, glacier retreat and permafrost loss will raise Himalayan hazard risks.
7. **Hazards are location-specific:** Even under a warming climate, the immediate causes of individual glacial collapses must be examined separately for each site.

Challenges in Monitoring and Predicting Himalayan Disasters

1. **Large monitoring challenge:** The Indian Himalayas contain nearly 7,500 glacial lakes and about 15,000 glaciers, making comprehensive monitoring extremely difficult.
2. **Limits of remote sensing:** Satellites can detect changes and reconstruct disasters, but they cannot fully determine the stability of every glacier or lake.
3. **Need for field assessment:** Accurate assessment often requires site visits, but remote terrain makes access difficult and limits the period for expeditions.
4. **Short fieldwork window:** High-altitude expeditions are generally feasible only from July to September, restricting detailed on-ground observations.
5. **Difficulty of precise forecasting:** Even with satellite data, predicting exactly when and where a glacier will collapse remains extremely difficult.
6. **Limits of conventional flood warnings:** The absence of rainfall before the Nepal disaster shows that rainfall-based warning systems may fail to detect such sudden events.
7. **Risk of ineffective warnings:** Warnings may also have limited value when residents cannot relocate because of habit, livelihood needs or lack of alternatives.
8. **Role of advanced technology:** Satellites, drones, unmanned aerial vehicles and thermal imaging can help assess damage, locate survivors and identify high-risk areas.

Way Forward

1. **Improve glacier health monitoring:** Governments should invest in better tracking of glaciers, glacial lakes and unstable mountain areas through remote sensing and field studies.
2. **Identify vulnerable zones:** Scientific monitoring should be used to map areas exposed to glacier collapse, GLOFs, landslides and debris-blocked rivers.
3. **Integrate risk into development:** Disaster assessments must become part of long-term development planning instead of being considered only after a disaster.
4. **Restrict construction in high-risk areas:** Settlements and large infrastructure projects should be discouraged in zones already identified as vulnerable to major natural outbursts.
5. **Strengthen construction standards:** Governments should enforce appropriate construction codes to reduce damage to roads, bridges and other infrastructure.
6. **Protect hydropower infrastructure:** Dams and hydropower projects in Himalayan valleys require greater attention because they are often among the first assets damaged.
7. **Prepare for cascading hazards:** Disaster planning must consider secondary risks, including temporary barrier lakes, river breaches and repeated downstream flooding.
8. **Go beyond relief and rescue:** Long-term prevention, continuous monitoring and safer development are necessary to address disasters worsened by passive neglect.

Conclusion

The Nepal flood shows how a disaster high in the Himalayas can quickly turn into a major downstream crisis through **glacial collapse, debris flow and river blockage**. Climate change is increasing the wider risks, even if its direct role remains uncertain. Better monitoring, safer construction and risk-based development can reduce future losses and prevent natural hazards from becoming larger human disasters.

Question for practice:

Discuss the causes, growing risks and challenges associated with glacier-related disasters in the Himalayan region, with special reference to the Nepal flood.

Source: The Hindu

Why Central Asia matters for India

Source: The post “Why Central Asia matters for India” has been created based on “PM Modi visit to Uzbekistan, Kyrgyz Republic: Why Central Asia matters for India” published in “Indian Express” on 25th August 2026.

UPSC Syllabus: GS 2- International Relations

Context: Prime Minister Narendra Modi is visiting Central Asia from August 29 to September 1, 2026, with a bilateral visit to Uzbekistan from August 29–30, followed by participation in the 26th Shanghai Cooperation Organisation (SCO) Summit in the Kyrgyz Republic from August 31–September 1.

Introduction

1. Central Asia, comprising **Kazakhstan, Kyrgyz Republic, Uzbekistan, Tajikistan and Turkmenistan**, is considered India’s **extended neighbourhood**.
2. India’s focused engagement with the region began with the “**Connect Central Asia**” policy in 2012, and Prime Minister Modi’s visit to all five Central Asian countries in 2015 gave further momentum to this outreach.

Why Central Asia matters for India

1. **Strategic and geopolitical importance**
 - a. Central Asia has traditionally been regarded as **Russia’s backyard**, while China has increased its economic and strategic presence through the **Belt and Road Initiative (BRI)**.
 - b. India’s engagement seeks to ensure that the **post-Soviet space is not dominated by China** and to expand India’s strategic space in the region.
2. **Security concerns**
 - a. The **Taliban takeover of Afghanistan** has increased concerns regarding terrorism, radicalisation and instability in the region.
 - b. Cooperation with Central Asian countries is therefore important for **counter-terrorism and regional security**.
 - c. The possibility of regrouping of the **Islamic State** in the wider region poses an additional security challenge.
3. **Energy and mineral resources**
 - a. Central Asia is extremely rich in natural resources.
 - b. **Kazakhstan** possesses major uranium reserves along with coal, lead, zinc, gold and iron ore.
 - c. **Turkmenistan** has one of the world’s largest natural gas reserves.
 - d. **Uzbekistan** has gold, uranium and natural gas, while the **Kyrgyz Republic and Tajikistan** have significant hydropower potential.
 - e. Access to these resources can support India’s **energy security and industrial requirements**.
4. **Connectivity and trade**
 - a. India faces a major geographical disadvantage because **Pakistan blocks direct overland access to Central Asia**.
 - b. India therefore seeks to use the **Chabahar Port in Iran** and integrate it with the **International North-South Transport Corridor (INSTC)** to improve connectivity with Central Asia.
 - c. Better connectivity can also expand India’s trade and economic engagement with the region.
5. **Economic opportunities**
 - a. The region’s mineral and energy resources offer opportunities for **Indian investment, trade and resource access**.
 - b. Uzbekistan is already among India’s important trading partners, with bilateral trade reaching **nearly \$1 billion in 2025-26**.
6. **Civilisational and cultural ties**

- a. India shares deep historical and civilisational links with Central Asia.
 - b. The **Kara Tepa Buddhist monastery in Termez, Uzbekistan**, reflects the spread of Buddhism from India into Central Asia during the Kushana period.
 - c. India and Uzbekistan also share linguistic and cultural similarities, including around **3,000 shared words** and similarities in cuisine such as **samosa-samsa, naan-non and pulao-pilaf**.
7. **Multilateral significance**
- a. India has been a member of the **Shanghai Cooperation Organisation (SCO) since 2017**.
 - b. The SCO provides India with a platform to engage simultaneously with **Central Asian countries, Russia, China and other regional actors** on security and strategic issues.
 - c. India's outreach was also reflected in its invitation to Central Asian leaders for the **Republic Day celebrations in January 2022**.

Challenges

1. **Connectivity deficit:** Pakistan's geographical position prevents direct land access, making India dependent on alternative routes such as Iran.
2. **Chinese influence:** China's large investments under the BRI have increased its economic and strategic influence in Central Asia.
3. **Afghanistan instability:** Taliban rule, terrorism and radicalisation create security uncertainties.
4. **Russia-Ukraine conflict:** The conflict may create political and economic churn in Central Asian countries.
5. **Demographic and social pressures:** The movement of skilled and wealthy Russians into Central Asia could bring economic benefits but may also create **local social tensions**.

Way Forward

1. India should deepen its **security and counter-terrorism cooperation** with Central Asian states.
2. It should accelerate connectivity through **Chabahar and the INSTC** to overcome geographical constraints.
3. India should strengthen cooperation in **uranium, hydrocarbons, minerals and hydropower**.
4. Greater trade, investment and cultural exchanges can provide a stronger foundation for long-term relations.
5. India should also use platforms such as the **SCO** to pursue its strategic interests while maintaining balanced relations with Russia, China and Central Asian states.

Conclusion: Central Asia is important for India not only because of its **energy and mineral resources**, but also because of its location at the intersection of India's **security, connectivity and geopolitical interests**. A sustained and multidimensional engagement can help India secure its **extended neighbourhood**, diversify its resource supplies and contribute to stability in the wider region.

Question: Central Asia is strategically important for India's security, connectivity, energy and economic interests. In this context, discuss the significance of India's engagement with Central Asian countries and the challenges involved.

Source: Indian Express

Safeguarding small sellers in the e-comm space

Source: The post "Safeguarding small sellers in the e-comm space" has been created based on "Safeguarding small sellers in the e-comm space" published in "Indian Express" on 25th August 2026.

UPSC Syllabus: GS 2- International Relations

Context: India is increasingly using **cross-border e-commerce** to connect small producers, artisans and MSMEs with global consumers. The **DGFT Notification 27/2026-27 and Public Notice No. 25/2026-27**,

issued on August 5, 2026, operationalise the **Inventory-based Cross-Border E-Commerce Facilitation Framework** while introducing safeguards for small sellers.

Key concerns for small sellers

- Large e-commerce intermediaries may gain excessive control over **pricing, customer ownership and market information**.
- Small producers may become dependent on intermediaries without knowing the **final overseas sale price or consumer demand**.
- MSMEs may also face risks related to **unfair deductions, returns, discounts, damaged inventory and rejection of goods**.
- There are concerns regarding **unauthorised rebranding, copying of designs and misuse of trademarks**.

Major safeguards introduced by DGFT

1. **Clear distinction between participants**
 - a. The framework distinguishes between the **Exporter-on-Record (EOR)**, who manages exports and inventory, and the **Seller-on-Record (SOR)**, whose goods are procured for export.
 - b. This recognises that the logistical exporter and the actual producer need not be the same entity.
2. **Greater transparency**
 - a. The EOR must maintain a digital repository connecting **procurement records, GST invoices and export documents** with individual sellers.
 - b. Sellers must receive information on the **final overseas sale price, order status, shipment tracking and destination country**.
3. **Access to export benefits**
 - a. Seller-attributable export benefits must reach the SOR.
 - b. The administrative charge retained by the EOR cannot exceed **10% of export rebates and refunds**, and attributable benefits must be transferred within **30 days** of receipt.
4. **Accountability and compliance**
 - a. **Independent compliance certification** and preservation of records for **five years** strengthen transparency and accountability.
5. **Dispute resolution**
 - a. Sellers can approach the concerned **DGFT Regional Authority** for dispute resolution.
 - b. The existing rights of micro and small enterprises under the **MSMED Act**, including access to the **MSE Facilitation Council**, remain unaffected.

Measures to further strengthen the framework

1. A **model EOR-SOR agreement** should be developed for micro and small enterprises, clearly specifying procurement prices, commissions, deductions, returns, discounts and damaged inventory.
2. **Retrospective price reductions or deductions** should generally be prohibited after goods have been accepted into export inventory.
3. Sellers should receive a simple **digital dashboard** containing information on exports, destinations, realised prices, returns, discounts and export benefits.
4. Stronger protection should be provided for **Indian brands, trademarks, handicrafts, handlooms and GI products** against unauthorised rebranding and copying.
5. The framework should balance seller protection with the legitimate costs and returns of EORs, which provide **warehousing, technology, logistics, marketing, fulfilment and global market access**.

Way Forward

1. India should aim for a **partnership-based e-commerce ecosystem** rather than excessive regulation.

2. The EOR should earn through logistics, technology, fulfilment and market access, while the SOR should retain **timely payments, export benefits, brand protection and access to market information**.
3. The pilot phase should be used to improve the framework and ensure that e-commerce becomes **shared export infrastructure for MSMEs**.

Conclusion: The success of the framework should not be measured merely by the **volume of exports through e-commerce warehouses**. Its real success will lie in enabling **Indian micro and small enterprises to become stronger, more profitable and globally competitive without surrendering their economic identity**.

Question: The inventory-based cross-border e-commerce model can expand India's export potential, but may also create risks for small sellers. Discuss the safeguards introduced by DGFT and suggest measures to further protect MSMEs.

Source: [Business Line](#)

The Real Causes of Sugar Price Spike

UPSC Syllabus: Gs Paper 3- Indian economy

Introduction

Retail sugar prices have risen sharply from around ₹45-₹48 to ₹58-₹70 per kg, raising concerns before the festive season. The increase reflects **lower domestic production, weather damage, seasonal demand, ethanol diversion, global supply pressure and speculative hoarding**, rather than one single cause. The key issue is to identify how these factors interact and determine why the present spike is sharper than normal seasonal increases.

Understanding the Underlying Structural Problem

1. **Cobweb cycle:** Sugar prices follow a recurring cycle where high prices encourage cultivation, while later oversupply causes prices and farmer returns to fall.
2. **Production time lag:** Sugarcane takes around **12-18 months** to mature, so farmers' acreage decisions affect market supply only after a substantial delay.
3. **Surplus and price crash:** Increased cultivation eventually creates excess sugar, pushing domestic prices down and causing sugar mills to struggle with farmer payments.
4. **Farmer arrears:** Falling returns increase payment problems, with sugarcane farmers facing around **₹3,449 crore in arrears during 2024-25** alone.
5. **Reduced future cultivation:** Poor returns discourage farmers from maintaining sugarcane acreage, creating supply shortages that can push prices sharply upward later.
6. **Declining production:** Sugarcane production fell from **491 million tonnes in 2022-23 to 456 million tonnes in 2024-25**, strengthening the current supply shortage.
7. **Higher cane costs:** Rising **Fair and Remunerative Price (FRP) and State Advised Price (SAP)** have increased sugarcane costs, adding to the cost pressure faced by the sugar industry.

Immediate Drivers of the Current Sugar Price Spike

1. **Lower sugar output:** Current sugar production is estimated at 30.6 million tonnes, around 11% below the initial estimate of 34.3 million tonnes, sharply tightening expected availability..
2. **Crop diseases: Red Rot and Top Borer** infestations have damaged sugarcane crops and contributed to the decline in expected sugar production.
3. **Excess rainfall:** Heavy rainfall and waterlogging in major growing areas damaged crops, showing that both excess and deficient rainfall can affect sugar output.
4. **El Niño impact:** El Niño-related dry spells and weak monsoon conditions reduced water availability, but the earlier production decline without similar price pressure limits its explanatory role.
5. **Festive demand:** Sugar purchases rise during the festive season among households, sweet manufacturers and confectioners, adding demand pressure to already-tight domestic supplies.

6. **Global supply pressure:** A projected **3.3-million-tonne global sugar deficit in 2026-27** and rising international prices have added further pressure on domestic prices.

Ethanol Diversion and Market Speculation: How Much Do They Matter?

1. **Ethanol diversion:** Diverting sugar towards ethanol reduces the quantity available for edible consumption, adding to domestic supply pressure during production shortages.
2. **Rising diversion:** Sugar diverted for ethanol increased from **0.8 million tonnes in 2019-20 to more than 3 million tonnes in 2025-26**, tightening inventories.
3. **Government restriction:** The government reduced diversion when production prospects weakened, including a **1.7-million-tonne cap** on sugarcane juice and B-heavy molasses.
4. **Shift to grain feedstocks:** The share of ethanol produced from sugarcane fell from **86.2% in 2020-21 to 31.5% in 2024-25**, as maize and other grain-based feedstocks increasingly filled the gap.
5. **Ethanol remains contested:** Ethanol diversion has tightened sugar availability, but its reduced share and government restrictions show that it **cannot alone explain the present price spike**.
- 6.
7. **Speculative hoarding:** Traders, stockists and bulk buyers may withhold inventories when they expect shortages, creating artificial scarcity and pushing prices higher.
8. **Overall assessment:** Ethanol diversion contributes to supply tightness, but **production losses, festive demand and speculative holding together explain the sharper retail price increase**.

Government Initiatives

1. **Raw sugar imports:** The Centre permitted imports of **10 lakh tonnes of raw sugar until October 31** to increase domestic availability and ease price pressure.
2. **Stock limits:** Stock limits have been imposed on dealers and large bulk buyers, including beverage manufacturers, to discourage excessive inventory holding.
3. **Export restrictions:** Sugar exports had already been prohibited, ensuring that available domestic supplies remain focused on meeting Indian consumption requirements.
4. **Market monitoring:** The government is closely monitoring sugar prices, production, stocks and market behaviour to identify factors contributing to the unusual price rise.
5. **Ethanol allocation:** Ethanol diversion has been restricted during periods of expected sugar shortage, preventing excessive diversion from further reducing edible sugar availability.
6. **Supply management:** These measures aim to balance **consumer affordability, domestic sugar availability and the financial interests of farmers and sugar mills** during supply stress.

Way Forward

1. **Flexible ethanol policy:** Ethanol diversion should respond to **monsoon conditions, reservoir levels and real-time crop estimates** instead of following rigid multi-year allocation targets.
2. **Digital stock tracking:** A mandatory inventory portal for large traders, stockists and bulk consumers can provide real-time stock visibility and reduce speculative hoarding.
3. **Better sugarcane pricing: Fair and Remunerative Price (FRP)** should consider actual cultivation costs rather than relying mainly on projected cost estimates.
4. **Higher farm productivity:** Sugarcane productivity has remained around **83 tonnes per hectare since 2020-21**, making greater use of modern technology necessary for better farmer returns.
5. **Drip irrigation:** Promoting drip irrigation in major sugarcane belts such as **Maharashtra, Karnataka and Tamil Nadu** can reduce water use by up to **40%**.
6. **Price stabilisation fund:** A **Sugar Price Stabilisation Fund**, financed through a nominal variable cess on industrial sugar users, can help clear farmer arrears during market downturns.

7. **Integrated policy approach:** Sugar policy should balance **consumer prices, farmer incomes, mill viability and energy security** instead of addressing each objective separately.

Conclusion

The current sugar price spike reflects a combination of **structural production cycles, lower output, weather and disease damage, higher cane costs, festive demand, global supply pressure and speculative hoarding**. Ethanol diversion has added to supply pressure but does not fully explain the increase. A stable sugar economy therefore requires **better production planning, flexible ethanol allocation, transparent stock management, higher productivity and sustainable farmer returns**.

Question for practice:

Examine the real causes behind the recent rise in sugar prices in India.

Source: [Businessline](#); [Livemint](#)

A Shared Disaster, Beyond Borders and Geopolitics

UPSC Syllabus: Gs Paper 3- Disaster, and disaster management

Introduction

The **August 26, 2026 Himalayan disaster** began with a massive glacial collapse near the Nepal-China border and triggered destructive flash floods across interconnected river systems. Initially mistaken for an earthquake, the event became a **wider regional disaster affecting Nepal, China and India**, causing heavy loss of life, infrastructure destruction and cross-border flood risks. It exposed shared vulnerabilities in the Himalayas and showed why **disaster preparedness, scientific cooperation and humanitarian coordination** must extend beyond political boundaries.

From Glacial Collapse to Catastrophic Floods

1. **Glacial collapse, not tectonic activity:** The **United States Geological Survey** confirmed that the reported seismic activity came from a glacial collapse and landslide, rather than tectonic movement.
2. **Powerful impact created seismic signal:** The collapsed glacier fell nearly **1 km into the valley**, producing an impact equivalent to a **magnitude 5.2 earthquake** and triggering catastrophic downstream effects.
3. **Floodwaters travelled far downstream:** Water and debris moved nearly **100 km through the Trishuli and Bhoite Koshi river systems**, damaging settlements, roads and border infrastructure.
4. **Possible landslide-dam formation:** Debris may have temporarily blocked narrow sections of the Trishuli River, creating a **landslide dam** and raising the possibility of another major flood.
5. **Barrier lakes created fresh danger:** Two barrier lakes formed upstream, while one accumulated about **2.5 million cubic metres of water**, creating a risk of renewed downstream flooding.
6. **Uncertain sequence of events:** Scientists were still examining whether the glacier collapsed hours or days earlier, followed by river blockage and a sudden debris-filled flood.

Humanitarian and Infrastructure Devastation Across Borders

1. **Severe human losses in Nepal:** Later reports put Nepal's deaths at **at least 616**, while **1,924 people remained missing**, including large numbers of foreign nationals.
2. **Foreign tourists and pilgrims affected:** At least **540 foreigners** were among those missing, including Indian pilgrims and tourists travelling through the Himalayan border region.
3. **Major electricity capacity destroyed:** Damage to hydropower facilities wiped out around **475 megawatts of generating capacity**, severely affecting Nepal's electricity system.
4. **Gyirong Port suffered extensive destruction:** China's **\$175.8 million Gyirong Port**, a major Nepal-China trade gateway, was buried under sediment and debris.

5. **Chinese border connectivity collapsed:** Roads, power supplies and communication links around Gyirong County were severely damaged, while **seven deaths and 558 missing people** were later reported in Tibet.
6. **Downstream Indian districts faced flooding:** Floodwaters entered the **Gandak, Kosi and Ganga systems**, placing Bihar and Uttar Pradesh on high alert and forcing riverside communities to evacuate.

Crisis Transcending Political Boundaries

1. **Shared Himalayan geography creates shared risks:** Glaciers, rivers and mountain systems cross political boundaries, allowing hazards originating in one country to affect neighbouring populations.
2. **Natural hazards disrupt regional connectivity:** Damage to Gyirong Port and border routes showed how a Himalayan disaster can disrupt **trade, transport and connectivity between South Asia and Tibet**.
3. **Human movement creates cross-border humanitarian concerns:** The presence of foreign tourists and pilgrims among the missing made the disaster a wider humanitarian concern for several countries.
4. **Downstream impacts connect distant communities:** Floodwaters originating in the Himalayan border region reached river systems in India, showing how impacts can extend far beyond the disaster's source.
5. **Disaster risks require regional thinking:** The shared impact across Nepal, China and India shows that Himalayan disaster management cannot depend only on separate national responses.

Rescue, Relief and Regional Response

1. **Nepal expanded rescue operations:** Rescue teams were deployed along riverbanks from Rasuwa to Chitwan and other possible affected locations to locate survivors.
2. **China faced difficult access conditions:** Chinese rescuers reached the devastated Gyirong complex after roads and normal routes were destroyed.
3. **Nepal sought specialised foreign assistance:** Kathmandu requested help with **transport restoration, communication, body identification, DNA testing and long-term body preservation**, while retaining responsibility for general search and rescue.
4. **India and China supported connectivity restoration:** Nepal requested **Bailey bridges** from both neighbours after around two dozen bridges were destroyed.
5. **India provided emergency relief:** The **Indian Air Force sent nearly 50 tonnes of supplies**, including medical material, rations and tents, while National Disaster Response Force teams supported flood preparedness.
6. **International support expanded:** The United States offered **\$500,000**, the United Kingdom offered **£5 million**, and United Nations officials urged wider support for disaster response.

Emerging Risks in a Warming Himalayas

1. **Glacier melt is increasing regional vulnerability:** Climate change is accelerating glacier melt across the **Hindu Kush Himalaya**, potentially increasing instability in high mountain areas.
2. **Glacial thinning may raise landslide risks:** Warmer conditions can thin glaciers and weaken surrounding slopes, increasing the possibility of large-scale landslides and related hazards.
3. **Permafrost degradation can destabilise slopes:** Warming and thawing permafrost may reduce the natural stability of mountainsides and contribute to more frequent landslides.
4. **Climate link remains unconfirmed for this event:** Scientists cautioned that it is **too early to definitively attribute this specific disaster to climate change**, despite its possible influence.
5. **Secondary hazards may continue:** Over **100 glacial lakes** in the wider area could pose risks, while heavy rainfall and unstable barrier lakes may trigger further flooding.

Way Forward

1. **Build cross-border early-warning systems:** Nepal, India and China should strengthen joint monitoring of **glaciers, glacial lakes, landslides and river levels** to provide timely warnings.
2. **Map high-risk zones:** Scientific monitoring should identify areas vulnerable to **glacier collapse, glacial lake outbursts, landslides and debris-blocked rivers** for better preparedness.
3. **Share scientific and hydrological information:** Regular exchange of **geological, satellite and river-flow data** can improve understanding of hazards that move across national boundaries.
4. **Prepare for cascading hazards:** Disaster plans should cover **barrier-lake breaches, landslide dams and repeated downstream flooding**, rather than focusing only on the initial disaster.
5. **Integrate risk into development planning:** Disaster-risk assessment should become part of **long-term infrastructure planning**, especially for roads, bridges and hydropower projects in vulnerable Himalayan valleys.
6. **Create coordinated disaster-response mechanisms:** The three countries need practical arrangements for **rescue access, emergency communication, transport restoration and deployment of specialised technical teams** during cross-border disasters.
7. **Strengthen climate-risk preparedness:** Disaster planning should account for **glacier melt, permafrost degradation, unstable slopes and cascading hazards**, while recognising that the climate link to this specific event remains unconfirmed.
8. **Separate disaster cooperation from geopolitics:** India, Nepal and China should preserve space for **humanitarian and technical cooperation** even when broader strategic relations remain contested.

Conclusion

The disaster shows that natural hazards can cross political borders and affect interconnected Himalayan communities. Nepal, India and China therefore need stronger early-warning systems, scientific data-sharing, coordinated disaster response and climate-risk planning. At the same time, humanitarian cooperation should remain open despite wider geopolitical differences, turning shared vulnerability into stronger regional disaster resilience and more effective preparedness for future cross-border hazards.

Question for practice:

Examine how the Himalayan disaster shows the need for cooperation among Nepal, India and China beyond geopolitical differences.

Source: [The Hindu](#)

Atmanirbharta in fuel must strengthen India's food security

Source: The post "Atmanirbharta in fuel must strengthen India's food security" has been created based on "Atmanirbharta in fuel must strengthen India's food security" published in "Indian Express" on 31st August 2026.

UPSC Syllabus: GS-3 - Economy

Context: India's ethanol blending programme has made rapid progress, rising from **1.53% in 2013-14 to about 20% in 2025-26**. However, the recent sharp rise in sugar prices highlights the emerging **food-fuel trade-off** and the need to recalibrate the ethanol policy.

Challenges

1. **Tightening sugar supplies:** Opening sugar stocks fell from **8 MT to 5 MT**, while sugar production in 2025-26 is expected to decline from the initial estimate of 34.3 MT to around **28-29 MT**.
2. **Diversion of sugar:** Around **2.75 MT of sugar was diverted for ethanol**, aggravating the shortage when sugar supplies were already tight.
3. **Highly regulated value chain:** Government control over sugarcane pricing, sugar sales, imports, exports and ethanol feedstock allocation reduces the ability of market signals to correct shortages.

4. **Limited imports:** Allowing only **1 MT of duty-free raw sugar imports** may not be sufficient to rebuild stocks before the festive season.
5. **Rice as an alternative:** Excess FCI rice stocks can be used for ethanol, but such diversion must occur only when there is a **genuine surplus**.
6. **Maize productivity constraint:** Maize is a better feedstock due to its lower water requirement, but India's productivity is only around **3.5 tonnes/ha**, compared with about **11 tonnes/ha in the US**.
7. **Impact on livestock sector:** Greater use of maize for ethanol can raise maize prices and increase the cost of **poultry meat, eggs and milk**, since maize is an important feed.
8. Thus, shifting from sugar to rice or maize **does not completely eliminate the food-fuel trade-off**.

Way Forward

1. The government should **import adequate sugar**, preferably around **3-4 MT of refined sugar**, and reduce the import duty on refined sugar from 100% to zero or around 5% temporarily.
2. **Sugar-based ethanol should be reduced temporarily** during periods of tight sugar supply.
3. FCI rice should be used for ethanol **only when genuine surplus exists**, while ensuring at least the procurement price is recovered.
4. **Maize should be promoted as the preferred long-term feedstock**, along with investments in irrigation efficiency, better seeds, technology and productivity enhancement.
5. India should undertake a **360-degree evaluation of the ethanol programme**, including the net energy balance and environmental impact of different feedstocks.
6. Oil marketing companies should receive **greater flexibility to choose economical feedstocks**, subject to safeguards for food security, farmers and the environment.
7. **Imported ethanol should act as a safety valve**, and blending may be temporarily reduced from 20% to around **15%** when domestic feedstock shortages threaten food prices.

Conclusion: Ethanol blending is important for **energy security, import reduction and fuel self-reliance**, but **food security must remain the higher-order priority**. Therefore, India's *Atmanirbharta* in fuel should be designed to **strengthen, not undermine, food security**, with strategic buffers, flexible feedstock use and higher maize productivity.

Question: Atmanirbharta in fuel is important for India's energy security, but it should not come at the cost of food security. Discuss the challenges associated with India's ethanol blending programme and suggest a way forward.

Source: [Indian Express](#)

OBC creamy layer and the income test

Source: The post "OBC creamy layer and the income test" has been created based on "OBC creamy-layer income test: What did the Supreme Court rule, and why is the Centre seeking clarification? | Explained" published in "The Hindu" on 31st August 2026.

UPSC Syllabus: GS-2- Governance

Context: The concept of the **OBC creamy layer** seeks to exclude socially and economically advanced sections among OBCs from reservation benefits. The Supreme Court's **March 11, 2026 judgment in *Union of India vs Rohith Nathan*** addressed the manner in which the income/wealth test should be applied to certain OBC candidates.

Supreme Court's ruling:

1. The cases involved OBC candidates whose parents worked in **PSUs or the private sector**, where equivalence of posts with government services had not been established.
2. The Court held that such candidates **cannot be treated differently** from OBC candidates in other categories for creamy-layer determination.

3. The income/wealth test should operate as a “**residual filter**”. The 1993 DoPT Office Memorandum had consciously excluded **salary and agricultural income** while applying the test.
4. The Court found that the subsequent 2004 DoPT letter had resulted in the inclusion of salary income in certain cases, creating “**hostile discrimination**” between children of government employees and those of PSU/private-sector employees.
5. The Court directed the Centre to implement this interpretation within six months and create **supernumerary posts** for affected OBC candidates according to their CSE ranks.

Why is the Centre seeking clarification?

1. The Centre argues that **retrospective implementation** would be extremely difficult and could have a **cascading effect on settled services from 2012 onwards**.
2. It apprehends a large number of **claims for adjustment and seniority disputes** arising from retrospective changes.
3. The impact could extend beyond OBC candidates to **all categories, including the Unreserved category**.
4. Since the judgment, **22 other judgments** have reportedly applied its principles, while **12 new cases** have sought reconsideration of OBC non-creamy-layer status.
5. The Centre has separately sought permission to continue the existing service allocation for **CSE 2025 candidates**, with more than **950 candidates** about to begin their Foundation Course.
6. It has also argued that salary income may sometimes be the “**sole intelligible differentia**” between OBC candidates from similar social backgrounds and raised concerns about cases where parents earning up to **₹1 crore** could potentially be considered non-creamy layer if salary is excluded.

Way Forward

1. **Clear implementation guidelines:** The Centre should issue clear, uniform guidelines on the application of the income/wealth test to avoid arbitrary interpretation by authorities.
2. **Prospective implementation:** To protect settled services and seniority, the Court may consider a clearly defined framework for implementing the judgment prospectively while addressing genuinely affected candidates.
3. **Equivalence of posts:** The government should establish equivalence between PSU/private-sector posts and government-service posts at the earliest to ensure uniform application of creamy-layer criteria.
4. **Avoid retrospective disruption:** Any corrective exercise should minimise disruption to already settled recruitments, service allocations and seniority, particularly where third-party rights are involved.
5. **Balanced income criterion:** The policy should ensure that exclusion from reservation reflects social and economic advancement, while preventing salary income from becoming an arbitrary basis for treating similarly placed candidates differently.
6. **Judicial clarification:** The Supreme Court should clearly settle the scope, temporal application and procedure for implementing the March 11 judgment so that prolonged litigation and administrative uncertainty are avoided.

Conclusion: The issue involves balancing substantive equality and non-discrimination with administrative certainty and protection of settled rights. A clear, uniform and carefully phased implementation framework can reconcile both objectives.

Question: What did the Supreme Court rule regarding the OBC creamy-layer income test in the Rohith Nathan case? Why has the Centre sought clarification on its implementation? Discuss.

Source : [The Hindu](#)

Nepal's Agony, the Himalayan Warning to India

UPSC Syllabus: Gs Paper 3- Disaster, and disaster management

Introduction

The August 26 Nepal disaster shows how **glacier collapse, fragile geology and changing climatic conditions** can combine into cascading hazards. For India, the warning is serious because the Himalaya is an interconnected geological, cryospheric and river system. **Climate change, infrastructure growth and rising tourism** can further increase exposure. The disaster therefore underlines the need for better preparedness, safer development and stronger regional cooperation.

What Happened in Nepal?

1. **Glacial collapse triggered the disaster: Satellite imagery and scientific assessment** indicate that a glacier collapse or ice-rock avalanche triggered the destructive flood, rather than a conventional earthquake.
2. **High-altitude glacier failure:** A section of glacier reportedly broke away at about **5,200 metres** and fell nearly **1,200 metres** into the valley, carrying ice and rock.
3. **Snowmelt may have contributed:** Available imagery indicated that **substantial snow may have melted during the 24 hours** before the disaster, although the immediate trigger was glacier and slope failure.
4. **Scientific uncertainty about the sequence:** The exact chain remains under assessment, including whether an **earthquake triggered the collapse** or the collapse produced the unusual seismic signal.
5. **Possible temporary river blockage: Ice, rock and sediment** may have temporarily blocked the river, allowing water to accumulate before the natural barrier suddenly failed.
6. **Flood travelled through connected rivers:** The flood entered the **Lhende Khola**, then the **Bhote Koshi**, and finally moved south through the **Trishuli river system**.
7. **Extremely rapid water rise:** The **Trishuli River** reportedly rose about **9 metres within 30 minutes**, leaving very little time for evacuation.
8. **Extensive human and infrastructure losses:** The disaster caused **hundreds of deaths and many missing persons**, while settlements, hydropower facilities and monitoring infrastructure suffered extensive damage.
9. **Secondary flooding remained possible:** A newly formed **barrier lake upstream** created fears that another breach could release further water and debris downstream.

Why Is the Himalayan Region So Vulnerable?

1. **Naturally fragile geology:** The Himalaya is highly exposed to **earthquakes, landslides, avalanches and flash floods** because of its steep slopes and unstable geological conditions.
2. **Glacial collapse carries multiple materials:** Glacier failures can detach large masses of **ice along with rock, sediment and water**, increasing the destructive force of resulting flows.
3. **Different forms of glacier failure:** Gravity-driven failures may occur as **glacier detachments, ice avalanches or rock-ice avalanches**, especially on steep mountain slopes.
4. **Avalanches can become debris flows:** Collapsed ice and rock can move rapidly downhill and transform into an **ice-rich avalanche or destructive debris flow**.
5. **Barrier lakes create secondary hazards:** Landslide and avalanche debris can block mountain rivers, forming temporary lakes that store **large volumes of water**.
6. **Sudden barrier failure increases destruction:** When these blockages fail, **water, mud, rock and debris** can surge together through downstream valleys.
7. **Very little evacuation time:** High-speed flows can overwhelm **roads and vehicles**, leaving communities little time to reach safety.

8. **Himalayan hazards can cascade:** A single glacier or slope failure can trigger **river blockage, lake formation, sudden breach and downstream flooding** in sequence.

Why Should India Be Concerned?

1. **The Himalaya is one interconnected system:** The **Hindu Kush Himalaya** stretches from Afghanistan and Pakistan through India and Nepal to Bhutan and China, allowing hazards to cross borders.
2. **Large populations depend on Himalayan rivers:** Rivers originating in the region support **hundreds of millions in mountain areas and more than two billion downstream**.
3. **India has already faced similar disasters:** **Kedarnath (2013), Ronti Peak (2018), Chamoli (2021) and South Lhonak Lake (2023)** show India's exposure to sudden mountain hazards.
4. **South Lhonak showed long-term risk build-up:** The **2023 Sikkim GLOF** developed through changes accumulated over several years before damaging major infrastructure.
5. **Indian glacial systems are changing:** Uttarakhand has numerous glaciers and glacial lakes, while the **Alaknanda basin** has recorded significant expansion of glacial-lake areas.
6. **Risk extends across the Indian Himalaya:** **Ladakh, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh** contain glaciers, lakes and valleys exposed to cascading hazards.
7. **Water risks have two dimensions:** A changing cryosphere can cause **sudden excess water during disasters** while reducing dependable water availability over longer periods.
8. **Declining snow cover adds concern:** Himalayan snow cover in **2026 was 27.8% below the long-term average**, marking the **fourth consecutive year** of below-normal persistence.

What Is Making the Risk Worse?

1. **Rapid glacier loss:** Hindu Kush Himalayan glaciers lost ice **65% faster during 2011–2020** than during the previous decade, showing accelerating cryospheric change.
2. **Nepal has lost substantial ice volume:** Nepal's glaciers lost **nearly one-third of their ice volume in roughly three decades**, according to United Nations estimates.
3. **Himalayan warming is rapid:** High Mountain Asia is warming at about **0.32°C per decade**, compared with the **global average of 0.16°C**, increasing pressure on the cryosphere.
4. **Permafrost is becoming weaker:** Rising temperatures can reduce **permafrost**, weakening high-altitude slopes and increasing the possibility of landslides and ice-rock failures.
5. **Glacial lakes are becoming a greater concern:** Glacier melting can create or enlarge glacier-fed lakes, increasing the possibility of **Glacial Lake Outburst Floods (GLOFs)**.
6. **Climate change increases underlying vulnerability:** Reduced snow cover exposes darker glacier ice, which absorbs more heat and can accelerate melting and weaken glacier fronts.
7. **Infrastructure increases exposure:** **Roads, tunnels, dams, hydropower projects and settlements** place more people and assets in fragile mountain areas.
8. **Hydropower development is extensive:** Nepal has **over 570 projects**, while at least **193 dams** have been built or planned across the wider Tibetan region since 2000.
9. **Construction can disturb fragile terrain:** **Drilling, tunnelling and large-scale construction** can disturb mountain geology and increase vulnerability in unstable areas.
10. **Tourism adds pressure:** High **tourist footfall** can increase disaster losses by concentrating more people and infrastructure in vulnerable valleys.
11. **Large projects can create transboundary risks:** China's **Yarlung Tsangpo mega-dam** near Arunachal Pradesh has raised concerns because researchers identified an **active fault and weak surrounding terrain**.

Why Does Cooperation Between Himalayan Countries Matter?

1. **Shared risks cross borders: Floods, GLOFs and other mountain hazards** do not follow political boundaries, so disaster planning cannot remain limited to individual countries.
2. **Weak ecosystem cooperation: China, India and Nepal** still lack substantial cooperation for managing the wider Himalayan ecosystem and related disaster risks.
3. **Limited real-time data sharing:** There is no clearly established public system for continuously sharing **river flow, reservoir operations and glacial-lake conditions from Tibet**.
4. **Existing mechanisms need expansion:** The **2002 India-China Memorandum of Understanding** and **2005 expert-level mechanism** on transboundary rivers should also address GLOFs and wider Himalayan hazards.
5. **Transparency remains uneven:** Nepal provides relatively detailed project information, while **Chinese project information remains scattered** across different official documents and announcements.
6. **Warnings can fail without upstream information:** Gaps in cross-border data-sharing can delay early warnings when hazards originate in **upstream areas outside the affected country**.
7. **Joint monitoring can improve preparedness:** Countries can share **hydrological, weather and climate data**, while downstream countries can co-invest in upstream observation systems.
8. **Emergency cooperation is necessary: Automated warnings, joint scientific studies and regular emergency exercises** can strengthen preparedness for transboundary disasters.
9. **Landscape-level planning is essential:** Since Himalayan hazards affect connected landscapes, scientific research and infrastructure planning should move beyond a **nation-state-centric approach**.

What Should India Do? — Way Forward

1. **Create integrated Himalayan monitoring:** India should connect **ISRO, Geological Survey of India, Wadia Institute of Himalayan Geology, National Institute of Hydrology, universities, states and communities**.
2. **Map vulnerable locations:** Scientific monitoring should identify **dangerous glaciers, glacial lakes, unstable slopes and debris-blocked rivers** capable of producing cascading hazards.
3. **Combine remote sensing with field studies:** Satellites can detect changes and reconstruct disasters, but **ground assessments** remain necessary to assess local stability more accurately.
4. **Use advanced technology:** **Satellites, drones, thermal imaging, water-level sensors and weather stations** can improve hazard detection, monitoring and damage assessment.
5. **Address monitoring limitations:** India has nearly **7,500 glacial lakes and about 15,000 glaciers**, while difficult terrain and the short **July–September fieldwork window** make complete monitoring difficult.
6. **Strengthen downstream early warnings:** Warning systems should cover **entire river valleys**, ensuring communities receive alerts early enough to evacuate safely.
7. **Move beyond rainfall-based warnings:** Sudden glacier-related floods may occur without significant rainfall, so systems must also monitor **glacier movement, lake levels and river conditions**.
8. **Prepare for secondary hazards:** Disaster plans must include **barrier lakes, sudden breaches, debris flows and repeated downstream flooding**, rather than focusing only on the first event.
9. **Regulate high-risk development:** Major infrastructure should undergo **cumulative climate, cryosphere and disaster-risk assessments**, while construction in identified high-risk zones should be restricted.
10. **Strengthen infrastructure safety:** Appropriate **construction standards and regular safety reviews** are needed for roads, bridges, dams and hydropower projects.
11. **Shift from relief to prevention:** Long-term **monitoring, risk reduction and safer development** must replace the cycle of rebuilding vulnerable infrastructure after disasters.

Conclusion

Nepal's disaster is a warning that **Himalayan hazards are becoming increasingly interconnected with climate change and human exposure**. India cannot prevent every glacier collapse or flood, but it can reduce their impact through scientific monitoring, timely warnings, safer infrastructure and regulated development. **Cross-border cooperation and landscape-level planning** are equally necessary because Himalayan risks do not stop at national boundaries.

Question for practice:

Examine the increasing Himalayan disaster risks and suggest measures to strengthen India's preparedness and resilience.

Source: [The Hindu](#)

Adopt Policies for Reuse of Treated Water

UPSC Syllabus: Gs Paper 2 - Government policies and interventions for development in various sectors And Paper 3- conservation

Introduction

India faces growing water demand, freshwater stress and excessive groundwater extraction, while much treated wastewater remains unused or is discharged into water bodies. **Safe Reuse of Treated Water (SRTW)** can provide a reliable source for agriculture, industry and urban needs, reduce pollution loads and strengthen water security. The emerging policy efforts of **Uttar Pradesh and Uttarakhand** show how State-specific approaches can shift wastewater management from disposal towards productive and accountable reuse.

Why India Needs to Mainstream Treated Water Reuse

1. **Rising water stress:** Growing water requirements and pressure on freshwater resources are increasing the need for alternative sources of water.
2. **NITI Aayog evidence:** The **Composite Water Management Index 2.0 (2019)** showed that **16 of 27 assessed States scored below 50 out of 100**, reflecting continuing gaps in water management.
3. **Low Beneficial Reuse:** Only **28% of sewage is effectively treated**, while just **3% of treated wastewater is beneficially used**, leaving substantial water resources untapped.
4. **Groundwater dependence:** Rampant groundwater extraction is increasing water stress, making treated wastewater important for reducing dependence on freshwater sources.
5. **Underused Treatment Infrastructure:** Discharging treated water into drains or rivers without productive reuse limits the value of the large investment made in sewage treatment infrastructure.
6. **Water Security and Resilience:** Reuse can provide an additional water source during scarcity and support cities facing drought, irregular rainfall and growing demand.
7. **Economic Opportunity:** Treated wastewater can support industrial and urban growth without placing equal pressure on existing freshwater supplies, while also creating opportunities for revenue and resource recovery.

Policy and Institutional Framework for Safe Reuse

1. **National Water Policy, 2012:** The policy treats recycling and reuse as a general norm and supports treatment to specified standards before wastewater reuse.
2. **National SRTW framework:** The **National Framework on Safe Reuse of Treated Water, 2022** guides States in preparing reuse policies and implementing them within a defined timeframe.
3. **Arth Ganga convergence:** Arth Ganga promotes monetisation and reuse of treated wastewater for irrigation and industry through cooperation with Ministries, Departments and public-sector undertakings.
4. **Thermal power mandate:** The **Power Tariff Policy, 2016** requires thermal power plants to use treated sewage water from STPs within 50 kilometres for non-potable purposes.

5. **National-level coordination:** Regular reviews through Empowered Task Force meetings support policy alignment, city action plans and sectoral reuse approaches across power, agriculture and industry.
6. **Institutional Support:** Centre for Science and Environment (CSE) provided technical support to Uttar Pradesh, while **National Mission for Clean Ganga (NMCG)** supported City-Level Reuse Action Plans for Agra and Prayagraj.

3. State and City-Level Implementation

1. **State-level policy progress:** Uttarakhand has notified its Safe Reuse of Treated Water (SRTW) policy, while Uttar Pradesh has approved its **Safe Reuse of Treated Water Policy, 2026**, with policies in Bihar and West Bengal at the final notification stage.
2. **Indo-German Cooperation:** German Agency for International Cooperation (GIZ) supported Uttar Pradesh in drafting and finalising its SRTW policy and supported development of the national reuse framework.
3. **Phased targets in Uttar Pradesh:** The policy targets **50% reuse by 2030 and 100% thereafter** where Sewage Treatment Plant (STPs) and collection and treatment capacity already exist, while areas without functioning STPs target 30% by 2030, 50% by 2035 and 100% by 2045.
4. **City-level planning: City-Level Reuse Action Plans (CLRAPs)** convert policy into local projects by identifying treated-water availability, demand centres, distribution systems, financing and monitoring mechanisms.
5. **Prayagraj model:** Four proposed projects identify **126.45 Million Litres per Day (MLD)** of reuse potential across power, railways, agriculture and landscaping, with an estimated investment of **₹1,625 crore**.
6. **Agra model:** Three proposed projects target **28 MLD** of reuse potential with an estimated investment of **₹93 crore**, addressing urban water stress and pressure on the Yamuna and groundwater.
7. **Industrial adoption:** Panki Thermal Power Plant uses **40 MLD** of treated water, while Jojobera Power Plant, Pragati Power Stations and IOCL Mathura Refinery also use treated wastewater.
8. **Kolar Reuse Model:** Treated wastewater is used for **agriculture and groundwater recharge** in Kolar, showing how city wastewater can serve productive water needs.

Benefits and Potential of Treated Water Reuse

1. **Groundwater Improvement:** The Kolar intervention improved groundwater levels and quality, showing the potential of treated wastewater to support groundwater recharge.
2. **Agricultural Productivity:** The same intervention increased agricultural productivity, livestock and fish production, linking water reuse with wider rural economic gains.
3. **Higher Land Values:** Land values in Kolar increased by 118%, while farmers' net income from cash crops doubled after the intervention.
4. **Industrial Water Savings:** Wastewater recycling and reuse in thermal power plants can generate an average ₹300 million annual monetary benefit and save nearly 10 million cubic metres of water.
5. **Utility Revenue:** The Bangalore Water Supply and Sewerage Board earns nearly ₹164 million annually by selling 18 MLD of treated water, covering its operations and maintenance costs.
6. **Nutrient Recovery:** Recovering nitrogen, phosphorus and potassium from wastewater can reduce dependence on synthetic fertilisers and add economic value to treated wastewater.
7. **Future Resource Potential:** More than 35,000 million cubic metres of treated wastewater could be available by 2050, creating substantial scope for large-scale reuse.

Key Challenges to Large-Scale Reuse

1. **Limited Treatment Capacity:** A large share of sewage remains untreated, restricting the amount of wastewater available for safe and organised reuse.

2. **Inadequate Reuse Infrastructure:** Treatment capacity alone is insufficient because effective reuse also needs suitable distribution systems and infrastructure connecting treated water with users.
3. **Lack of Quality Standards:** Sector-wise reuse guidelines remain inadequate because different uses require different treatment levels, ranging from biological treatment to reverse osmosis or ultrafiltration.
4. **High Technology Costs:** Advanced technologies such as zero liquid discharge can maximise water recovery but involve high costs that discourage industries and municipalities.
5. **Weak Financial Conditions:** Financial constraints and unclear incentives reduce the economic attractiveness of treated-water reuse for potential users.
6. **Technical and Private-Sector Gaps:** Limited research and development, private-sector participation and skilled personnel slow technological improvement and wider adoption.
7. **Public Acceptance:** Misconceptions about the safety of treated water create socio-cultural barriers, particularly where wider public acceptance is needed.

Way Forward

1. **Fit-for-Purpose Standards:** Reuse standards should match the quality required for each sector so that treated water can be safely used without unnecessary treatment costs.
2. **Research and Innovation:** Greater support for industries, universities and research institutions can promote new treatment technologies, water-efficiency practices, pilots and demonstrations.
3. **Infrastructure Development:** City-level roadmaps should connect treatment capacity with distribution networks and identified demand centres so that treated water reaches actual users.
4. **Incentives for Agriculture and Housing:** Farmers can be encouraged to use treated wastewater in water-scarce areas, while subsidies for dual plumbing or property-tax rebates can promote residential reuse.
5. **Volumetric Water Pricing:** Charging users according to consumption and applying higher tariffs to non-recycled water can encourage municipalities and housing societies to adopt treated water.
6. **Public-Private Partnerships:** Government financial support combined with private technical expertise can accelerate wastewater treatment and reuse infrastructure.
7. **Financial Convergence:** Reuse targets can gain financial momentum by linking existing schemes and programmes instead of depending only on new budget allocations.
8. **Water-Use Credits:** Entities using treated wastewater could receive **monetisable or tradable water-use credits**, creating an economic incentive for greater reuse.
9. **Institutional Coordination:** Utilities, urban departments, irrigation agencies and industries need to work together rather than operating in separate institutional silos.
10. **Public Awareness:** Clear communication on the safety and usefulness of treated water can address misconceptions and improve acceptance of reuse.

Conclusion

India needs to shift from “**treat-and-dispose**” to “**treat-and-reuse**” by linking sewage treatment with productive demand. National guidance, State policies, city-level plans, economic mechanisms and public acceptance can make this transition practical. Mainstreaming treated water can conserve freshwater, reduce groundwater pressure, lower river pollution, support economic activity and build a **resilient circular water economy**.

Question for practice:

Discuss the need for adopting policies to promote the safe reuse of treated water in India.

Source: [The Hindu](#)