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JUNE 2025





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Foreword

Dear Aspirants,

This magazine by the Plutus IAS team is designed in such a fashion that it holistically covers all the relevant and important topics for the Civil Services Exam to make aspirants exam-ready. Plutus IAS Current Affairs Magazine is a secondary source of information; the newspaper will remain the primary source for the preparation of Current Affairs.

Now, Current Affairs are no longer merely current; they are Contemporary Affairs. Questions asked in both Prelims as well as the Mains assess the conceptual clarity of an aspirant. This magazine is prepared with the aim of helping you understand the interlinkages of both Static and Dynamic news events and internalize the concepts required to crack this examination.

The Plutus IAS team wishes you all the best. Prepare for the UPSC Civil Services Examination with a calm, composed, or serene mind and some patience to crack this examination in one go.

Team
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Sources:
The Hindu | The Indian Express | The Economic Times | Press Information Bureau | PRS Legislative Research | IDSA: Institute for Defense Studies and Analysis | Yojana and Kurukshetra | Lok Sabha and Rajya Sabha Debates.



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CELEBRATING THE SPIRIT OF SERVICE: 17TH CIVIL SERVICES DAY

WHY IN THE NEWS?

The 17th Civil Services Day was celebrated on April 21, 2025, at Vigyan Bhawan, New Delhi, where Prime Minister Narendra Modi addressed civil servants and conferred the Prime Minister's Awards for Excellence in Public Administration. This year's celebration holds special significance as it coincides with the 75th year of the Indian Constitution and the 150th birth anniversary of Sardar Vallabhbhai Patel, who famously described civil servants as the "Steel Frame of India" on April 21, 1947. The Prime Minister paid tribute to Patel's legacy and urged civil servants to embody his ideals of discipline, honesty, and service to the nation. PM Modi emphasised the role of civil servants in realising the vision of Viksit Bharat (Developed India), stating that decisions and policies made today will shape the next thousand years. He called for collective effort, dedication, and consistent hard work, highlighting that progress requires more than fate it demands tireless action.



CIVIL SERVICE DAY

India observes Civil Services Day on April 21 every year to acknowledge the crucial role of civil servants in governance and public administration. The day marks the historic address by Sardar Vallabhbhai Patel to probationers of the All India Services at Metcalfe House, Delhi on April 21, 1947, where he described civil servants as the "Steel Frame of India."

FIRST OBSERVED IN 2006, THE DAY IS ORGANISED BY THE DEPARTMENT OF ADMINISTRATIVE REFORMS AND PUBLIC GRIEVANCES (DARPG). IT SERVES TO:

1. Recognise excellence in public service through the Prime Minister's Awards for Excellence in Public Administration.
2. Promote innovation, accountability, and transparency in governance.
3. Encourage experience-sharing and renew commitment to ethical service.

ROLE OF CIVIL SERVICES IN INDIAN DEMOCRACY

1. **Implementing Policies and Programs:** Civil services act as the executive arm of the government, translating policies into action through the implementation of schemes like PMAY, MGNREGA, Swachh Bharat Abhiyan, etc.
2. **Maintaining Administrative Continuity:** Despite frequent political changes, civil servants provide continuity, stability, and institutional memory, essential for long-term governance.
3. **Upholding the Rule of Law:** Civil services ensure the enforcement of laws and constitutional provisions uniformly across regions, safeguarding justice and equity.
4. **Strengthening Federalism:** Through All India Services like IAS, IPS, and IFS, they connect the Centre and States, ensuring coordinated development and national integration.
5. **Ensuring Welfare and Inclusive Development:** They focus on the last-mile delivery of services and welfare schemes, helping bridge socio-economic gaps, especially in rural and marginalised areas.

6. **Disaster and Crisis Management:** Civil servants play a frontline role in disaster relief operations, pandemic response (e.g., COVID-19), and maintaining law and order during emergencies.
7. **Promoting Good Governance and Innovation:** Officers are key to administrative reforms, e-governance, and public grievance redressal, making the system more transparent and citizen-friendly.
8. **Safeguarding Democratic Values:** By adhering to constitutional ethics, neutrality, and accountability, civil servants support democratic institutions and the spirit of participatory governance.

WHAT ARE THE ISSUES WITH THE CIVIL SERVICES IN INDIA?

1. **Colonial Legacy:** Bureaucracy follows a command-and-control model, often rigid and risk-averse.
2. **Generalist Approach:** Officers lack domain expertise, affecting technical decision-making in specialised sectors.
3. **Recruitment & Training Gaps:** One-time exam (UPSC) and outdated training fail to meet evolving governance needs. Limited in-service learning.
4. **Political Interference:** Frequent transfers and pressure from political executives compromise autonomy and efficiency.
5. **Poor Performance Evaluation:** APAR system is subjective; lacks accountability and performance-based rewards.
6. **Red Tape:** Bureaucratic delays due to procedural rigidity hamper effective service delivery and reforms.
7. **Low Tech Adoption:** Weak integration of digital tools and modern technology in governance and policy execution.
8. **Underrepresentation:** Lack of lateral entry and fewer women or marginalised groups in top positions.
9. **Urban Bias:** Officers prefer urban postings, leading to neglect of rural and backwards regions.
10. **Corruption & Accountability Issues:** Absence of robust mechanisms to penalise inefficiency and corruption.

RECOMMENDATION

1. **Promote Specialization:** Encourage domain expertise by creating specialised cadres and promoting knowledge-based postings in sectors like health, environment, economy, etc.
2. **Lateral Entry and Diversity:** Institutionalise lateral entry at senior levels to bring in fresh talent from the private sector, academia, and NGOS, and ensure better representation of women and marginalised communities.
3. **Performance-Based Appraisal:** Replace the outdated APAR system with objective, transparent, and measurable performance indicators linked to outcomes and citizen satisfaction.
4. **Fixed Tenure & Protection from Political Interference:** Implement clear rules for fixed tenures to ensure stability and reduce arbitrary transfers under political pressure.
5. **Continuous Capacity Building:** Expand initiatives like Mission Karmayogi to ensure lifelong learning, tech adoption, leadership training, and behavioural change among officers.
6. **Digital Governance Integration:** Use Artificial Intelligence, big data, and digital platforms to improve decision-making, service delivery, and public accountability.
7. **Citizen-Centric Mindset:** Reform bureaucratic attitudes to focus on service delivery, empathy, and responsiveness through regular fieldwork and direct public engagement.
8. **Administrative Decentralisation:** Empower local governments and grassroots officials by delegating authority, budgets, and training to enhance last-mile governance.

CONCLUSION

Civil Services form the bedrock of India's administrative system, ensuring policy implementation, democratic continuity, and inclusive development. However, outdated structures, lack of specialization, and political interference hinder their efficiency. As India aspires to become a developed nation (Viksit Bharat), reforming the civil services is crucial. Through performance-driven systems, domain expertise, digital integration, and citizen-centric governance, the steel frame can be strengthened to meet 21st-century governance challenges and uphold the vision of the Constitution's framers.

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FEDERALISM: THE SOUL OF THE INDIAN CONSTITUTION

WHY IN THE NEWS?

Senior Supreme Court advocate and Congress Rajya Sabha MP Abhishek Manu Singhvi, speaking at Dr. B.R. Ambedkar's 134th birth anniversary celebrations, highlighted two key paradoxes in Indian federalism. He pointed out that while the Constitution does not explicitly mention the term "federalism," the Supreme Court recognised it as part of the basic structure over 30 years ago. Further, although India was originally designed as a strong centralised polity, it has evolved into a much more federal system over 75 years. Singhvi attributed this "accidental federalism" to factors like the creation of ethno-linguistic states, the rise of regional parties, coalition politics, fiscal devolution, and the empowerment of Panchayati Raj institutions. His remarks underline the organic and evolving character of federalism in India.



WHAT IS FEDERALISM?

Federalism is a system of government in which power and authority are divided between a central (national) government and various constituent units (such as states or provinces). Each level of government operates independently in certain areas of legislation, administration, and taxation, as defined by a constitution.

KEY FEATURES OF FEDERALISM:

1. **Dual Government:** Central and state governments function independently.
2. **Written Constitution:** Clearly demarcates the powers and responsibilities of each level.
3. **Division of Powers:** Powers are distributed through lists such as the Union, State, and Concurrent Lists (in India).
4. **Supremacy of the Constitution:** The Constitution is the highest law, and all laws must conform to it.
5. **Independent Judiciary:** Resolves disputes between different levels of government.
6. **Bicameral Legislature (in many federations):** Usually includes a house representing the federal units (e.g., Rajya Sabha in India, Senate in the U.S.).

INDIAN FEDERALISM VS AMERICAN FEDERALISM

Aspect	Indian Federalism	American Federalism
1. Nature of Federation	Quasi-federal with a strong Centre	Pure federal system with clear division of powers
2. Source of the Constitution	Not based on an agreement of States; drafted by the Constituent Assembly	Formed by an agreement among sovereign States
3. Distribution of Powers	Three lists – Union, State, and Concurrent	Clear separation – Federal and State governments
4. State Autonomy	Limited; Centre can intervene in State matters	High autonomy; States are constitutionally strong
5. Citizenship	Single citizenship for all Indian citizens	Dual citizenship (U.S. and individual State)
6. Judiciary	Integrated judiciary with the Supreme Court at the apex	Dual judiciary – separate federal and state court systems
7. Emergency Powers	The Centre can assume control during a national, state, or financial emergency	Emergency powers are limited; federalism is largely preserved
8. Alteration of State Boundaries	The Centre can alter State boundaries without consent	States' boundaries cannot be changed without their consent

CONSTITUIONAL PROVISION

1. **Article 1 – India is a "Union of States":** Indicates the indestructible nature of the Union, with States having no right to secede.
2. **Seventh Schedule – Division of Powers:** Provides a three-fold distribution of legislative powers through the Union List, State List, and Concurrent List.
3. **Article 245–255 – Legislative Relations:** Define the scope of Parliament and State legislatures, and address conflicts between Centre and State laws.
4. **Article 256–263 – Administrative Relations:** Obligates States to comply with Union laws and provides for inter-State coordination through bodies like the Inter-State Council.
5. **Article 280 – Finance Commission:** Recommends distribution of financial resources between the Centre and States.
6. **Article 352, 356, and 360:** Emergency Provisions: Allow the Centre to assume greater control during national, state, or financial emergencies, affecting federal balance.
7. **Article 3 – Reorganisation of States:** Empowers Parliament to create new States or alter boundaries without the States' consent.
8. **Article 368:** Amendment Process: Some constitutional amendments require ratification by at least half of the State legislatures, reflecting federal spirit.
9. **Schedules V and VI - Special provisions for Scheduled and Tribal Areas:** Provide asymmetrical federalism by granting autonomy to certain regions.

SUCCESS OF INDIAN FEDERALISM

1. **Peaceful Integration of Diverse Regions:** India has successfully integrated over 560 princely states post-Independence and later reorganised states linguistically (States Reorganisation Act, 1956), maintaining unity amid diversity.
2. **Democratic Decentralisation:** The 73rd and 74th Constitutional Amendments (1992) empowered local self-governments, ensuring grassroots democracy across over 2.5 lakh Panchayats and Urban Local Bodies.
3. **Strong Centre Yet Regional Autonomy:** Despite central dominance, States like Tamil Nadu and Punjab have exercised distinct political and cultural identities without threatening national unity.
4. **Rise of Regional Parties and Coalition Era:** Over 40% of Indian voters now support regional parties. Coalition governments (e.g., UPA, NDA) have necessitated federal consultations, giving States more say in policymaking.
5. **Fiscal Federalism and Devolution:** The 15th Finance Commission (2021–26) recommended 41% of the divisible tax pool to States, strengthening their fiscal independence.
6. **Functional Institutions for Federal Coordination:** Bodies like the Inter-State Council, NITI Aayog, and GST Council (with 75% voting from States) enable cooperative federalism in decision-making.
7. **Judicial Protection of Federal Structure:** In the Kesavananda Bharati case (1973), the Supreme Court ruled federalism as part of the Basic Structure, preventing its dilution via constitutional amendments.
8. **Crisis Management through Federal Cooperation:** During the COVID-19 pandemic, Centre-State coordination in health, logistics, and disaster response showcased functional federalism in practice.

CHALLENGES

1. **Centralization of Powers:** Despite constitutional safeguards, increasing central control, especially during President's Rule (Article 356) and central schemes, often sidelines States' autonomy.
2. **Unequal Fiscal Federalism:** The Centre controls the majority of revenue sources, while States bear major expenditure responsibilities. States depend heavily on central transfers, leading to vertical fiscal imbalance.
3. **Politicisation of the Governor's Office:** Governors are often accused of acting as agents of the Centre, especially in non-aligned States (e.g., recent issues in West Bengal, Tamil Nadu, and Kerala).
4. **Inter-State River Water Disputes:** Disputes like Cauvery (Tamil Nadu–Karnataka) and Krishna (Andhra–Telangana) reflect friction over resource sharing and ineffective dispute resolution mechanisms.

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5. **Asymmetric Federalism and Regional Discontent:** Special provisions for certain States (e.g., Article 370 for J&K earlier, Sixth Schedule for Northeast) can breed perceptions of inequality or fuel separatist sentiments.
6. **Weak Inter-State Coordination Mechanisms:** Bodies like the Inter-State Council remain underutilised. Meetings are infrequent, reducing their effectiveness in resolving federal disputes.
7. **Tensions in GST Implementation:** While the GST Council promotes cooperative federalism, States often complain about delayed compensation and loss of fiscal autonomy.
8. **Language and Cultural Assertion:** Periodic tensions (e.g., opposition to Hindi imposition in southern States) highlight challenges in balancing national integration with linguistic federalism.

RECOMMENDATION

1. **Strengthen Cooperative Federalism Mechanisms:** Revitalise the Inter-State Council with regular meetings and empowered decision-making to enhance Centre-State and inter-State dialogue.
2. **Reform the Role of Governors:** Implement Punchhi Commission recommendations to make the Governor's office more impartial, transparent, and accountable to constitutional norms.
3. **Ensure Fiscal Equity:** Increase States' fiscal autonomy by widening their tax base, ensuring timely GST compensation, and reviewing Finance Commission formulas to address horizontal imbalance.
4. **Empower Local Governments:** Strengthen the 73rd and 74th Amendments by ensuring proper devolution of funds, functions, and functionaries (3Fs) to Panchayati Raj Institutions and Urban Local Bodies.
5. **Institutionalise Asymmetrical Federalism:** Recognise the diversity of India's regions (e.g., Northeast, tribal areas) by providing tailored governance models within the federal framework to address local needs.
6. **Improve Dispute Resolution Mechanisms:** Set up permanent tribunals or empower neutral constitutional bodies to resolve inter-state disputes quickly, especially on water, boundary, and resource-sharing issues.
7. **Foster Political Federalism:** Encourage healthy Centre-State relations regardless of political alignment by ensuring that centrally sponsored schemes are flexible and responsive to State needs.
8. **Promote Cultural and Linguistic Pluralism:** Respect and promote India's multilingual and multicultural identity through education, media, and policy, to prevent regional alienation.

CONCLUSION

Indian federalism, though not explicitly named in the Constitution, has evolved organically into a dynamic and resilient framework balancing unity and diversity. Over 75 years, India has demonstrated remarkable success in integrating diverse regions, empowering local bodies, and fostering cooperative governance despite its initially centralised design. However, challenges such as fiscal imbalances, political centralisation, and inter-state tensions continue to test the federal spirit. Moving forward, reforms like strengthening institutions of dialogue, ensuring fiscal autonomy, depoliticising the Governor's role, and respecting cultural pluralism are critical. A robust, cooperative, and flexible federal structure remains essential to sustain India's democratic vibrancy and socio-economic progress.

ELECTION COMMISSION OF INDIA (ECI): GUARDIAN OF INDIA'S ELECTORAL DEMOCRACY

WHY IN THE NEWS?

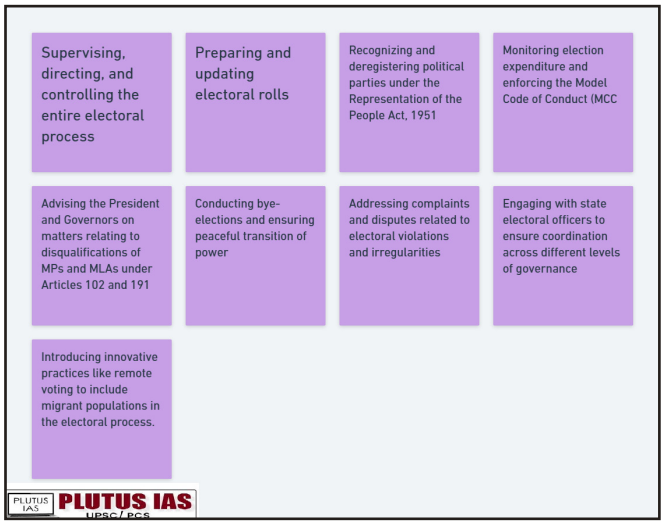
In May 2025, the Election Commission of India unveiled ECINET, a unified digital platform integrating over 40 existing apps like cVIGIL, Suvidha 2.0, and the Voter Helpline. This move follows allegations of voter roll manipulation and EPIC duplication. Developed after wide consultations with 36 CEOs and 4,000+ election officials, ECINET simplifies user experience, enhances cybersecurity, and ensures only authorised data entries. It addresses voter concerns, improves transparency, and boosts digital efficiency. By centralising services and improving access for voters and stakeholders, ECINET represents a major step in modernising India's electoral infrastructure and restoring public confidence.

WHAT IS THE ECI?

The Election Commission of India (ECI) is an autonomous constitutional authority responsible for administering election processes in India. It oversees elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies, and the offices of the President and Vice President. Established on 25th January 1950, the ECI ensures that India's elections are free, fair, and transparent. Celebrated annually as National Voters' Day, this date commemorates its pivotal role in safeguarding democracy. The Commission also plays a critical role in educating citizens about their electoral rights. Over time, it has evolved into one of the most powerful election management bodies in the world. It also engages with international electoral bodies to share best practices and improve global democratic processes. Its reputation and operational standards have made it a model for many developing democracies.

CONSTITUTIONAL MANDATE & FUNCTIONS

The ECI derives its powers from **Article 324** of the Constitution of India. It was initially a **single-member body** but became multi-member in 1993, consisting of the **Chief Election Commissioner (CEC)** and two **Election Commissioners**. Key constitutional functions include:



ROLE OF ECI IN STRENGTHENING INDIAN DEMOCRACY

1. **Conducting Regular and Peaceful Elections:** The ECI has ensured the smooth conduct of elections even during challenging times such as the Emergency (1975–77) and periods of communal violence. It has upheld constitutional continuity, giving legitimacy to governments. International observers have often praised India's electoral resilience.
2. **Embracing Technological Advancements:** With the introduction of Electronic Voting Machines (EVMs) and Voter Verifiable Paper Audit Trails (VVPATs), electoral processes have become more efficient and secure. According to ECI data (2024), 100% of booths now use EVMs, significantly reducing counting errors and fraud.
3. **Promoting Electoral Inclusiveness:** The ECI introduced voter ID cards and enhanced accessibility for senior citizens and persons with disabilities. In 2024, over 1 million PwD electors availed transport and home-voting facilities. These reforms uphold electoral justice and broaden participation.
4. **Monitoring Political Finance and Campaigning:** The ECI has implemented expenditure ceilings, flying squads, and audit mechanisms to curb money power in elections. In the 2024 elections, over ₹1,200 crore of illicit cash, liquor, and freebies were seized, indicating stronger vigilance.
5. **Encouraging Voter Participation:** Through the SVEEP program, the ECI has driven voter education and turnout, especially among youth and marginalized groups. The 2024 Lok Sabha election saw a 67.4% turnout, the highest ever in India's electoral history.
6. **Upholding Institutional Neutrality:** Despite political polarization, the ECI has retained public confidence through its impartial conduct. National and international reports, including by the EU Election Observation Mission (2024), commended ECI's nonpartisan approach and professionalism.

LIMITATIONS OF ECI'S FUNCTIONING

1. **Lack of Power over Internal Party Democracy:** The ECI has no authority to mandate internal elections or enforce transparency in political party operations. Political parties often centralize power and avoid disclosing candidate selection criteria or financial reports. For example, the ADR 2023 report highlighted widespread opacity in party functioning.

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2. **Delays in Disqualification for Electoral Malpractices:** The ECI cannot unilaterally disqualify candidates for malpractice, depending instead on prolonged judicial processes. This allows accused individuals to contest multiple elections unchecked. In the Ashwini Kumar Upadhyay PIL (2023), the Supreme Court noted the need for time-bound trials of electoral offences.
3. **Ambiguity in Appointment Process:** The lack of a defined and transparent procedure for appointing Election Commissioners has raised concerns over executive overreach. Political appointments may compromise the Commission's neutrality. The Anoop Baranwal case underscored this flaw and led to judicial intervention in 2023.
4. **Limited Control Over Social Media Misinformation:** Outdated legal frameworks constrain the ECI's ability to counter digital misinformation effectively. Political advertisements and deepfakes spread unchecked. During the 2024 state elections, fake news over WhatsApp and YouTube significantly influenced voter behavior, as documented by the Election Watchdog India.
5. **Inconsistent Enforcement of MCC:** Critics argue that the ECI applies the Model Code of Conduct unevenly, appearing lenient toward ruling parties. This perception erodes trust in the Commission's impartiality. For example, several complaints during the 2024 Lok Sabha elections went unaddressed, raising questions of bias.
6. **Resource Constraints:** The sheer scale of elections strains the ECI's logistical and administrative capabilities. With over 900 million eligible voters and 1 million polling stations (2024 data), gaps in manpower and infrastructure are evident. States like Bihar and West Bengal reported EVM shortages and delayed polling staff deployments.

KEY JUDICIAL INTERVENTIONS AND RECENT CASES

1. **Anoop Baranwal v. Union of India (2023): Issue:** The Supreme Court ruled that appointments to the ECI should be made by a committee comprising the Prime Minister, Leader of Opposition, and the Chief Justice of India, to ensure independence. Significance: This judgment aimed to reduce executive influence in ECI appointments, reinforcing the Commission's autonomy. The decision has catalyzed legislative debate on appointment reforms. It also reaffirmed the judiciary's role in protecting democratic institutions.
2. **Challenge to the Chief Election Commissioner and Other Election Commissioners Act, 2023: Issue:** The Act, which altered the appointment process of Election Commissioners, faced legal challenges for potentially undermining the ECI's independence. Status: As of May 2025, the Supreme Court is reviewing the Act's constitutionality, with implications for the ECI's autonomy. Critics argue that it dilutes earlier judicial safeguards. The case will set a precedent for future institutional appointments.
3. **Electoral Bonds Case (2024): Issue:** The Supreme Court declared the Electoral Bonds Scheme unconstitutional, citing violations of the right to information and electoral transparency. Outcome: The Court directed the State Bank of India to disclose details of donors and recipients, enhancing transparency in political funding. This has reshaped public discourse on election financing. It is expected to lead to more robust laws on campaign finance.
4. **Voter List Irregularities in Maharashtra (2025): Issue:** Opposition leader Rahul Gandhi alleged the addition of over 3.9 million names to Maharashtra's voter list before local elections, raising concerns about electoral roll manipulation. ECI's Response: The Commission denied irregularities and promised a written response. The matter is under judicial consideration as of May 2025. The case highlights the critical role of accurate electoral rolls. It also emphasizes the need for transparency in data management.

RECOMMENDATIONS FOR STRENGTHENING THE ECI

1. **Transparent Appointment Process:** Collegium-based appointment of Election Commissioners, as recommended by the Law Commission and

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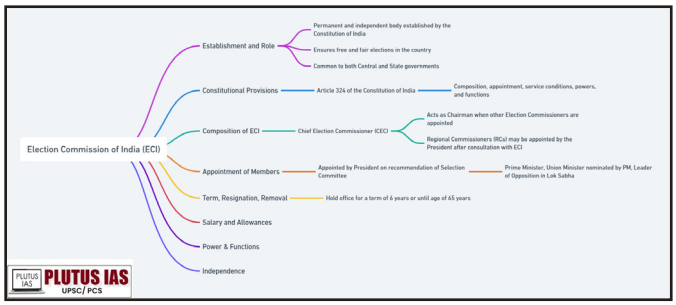
Supreme Court in 2023, to ensure independence. This will ensure non-partisan selections. It also enhances institutional credibility in the eyes of the public. For instance, the Anoop Baranwal case (2023) led to a major judicial directive promoting impartial appointments.

2. **Legal Backing for the MCC:** Statutory backing for the Model Code of Conduct to make violations legally enforceable. This can deter unethical practices and strengthen enforcement. Legal sanctions can instill discipline among political actors. In 2019, despite clear violations, no punitive action could be taken due to lack of legal teeth.
3. **Reforming Political Funding:** Greater regulatory oversight on political funding, especially electoral bonds. A transparent funding system is vital to restore public trust. Strong audit mechanisms must be developed to track money flows. The 2024 Supreme Court judgment striking down electoral bonds underlined the opacity and risks of unchecked funding.
4. **Tackling Digital Misinformation:** Stronger laws to counter misinformation, hate speech, and misuse of digital platforms. Collaboration with tech companies can aid monitoring. Election-specific content regulations need to be modernized. A study by the Internet Freedom Foundation in 2024 showed that over 200 fake news items went viral during state elections.
5. **Ensuring Inner-Party Democracy:** Legislative empowerment to ensure inner-party democracy and stricter candidate qualifications. This will promote ethical leadership. Mandating internal elections and financial transparency can democratize political culture. The ADR 2023 report revealed that only 5% of national parties publicly declare inner-party elections.
6. **Adequate Resources for the ECI:** Adequate financial and human resources to manage increasingly complex electoral logistics. Training and capacity building must be prioritized. A permanent cadre of election professionals could be institutionalized. In the 2024 Lok Sabha elections, the ECI deployed over 11 million personnel, exposing critical gaps in logistics and training.

CONCLUSION

The Election Commission of India stands as a cornerstone of India's democratic edifice. While it has played a commendable role in ensuring free, fair, and peaceful elections over the decades, its credibility must be constantly reinforced through institutional reforms and political will. A robust and independent ECI is essential not just for procedural democracy but for the deepening of participatory and ethical governance in the world's largest democracy. Safeguarding its autonomy ensures that every citizen's voice is truly represented in governance. As India evolves, the ECI must adapt to newer challenges such as artificial intelligence, cyber threats, and electoral data security. Strengthening the Commission will directly reinforce the very soul of Indian democracy.

MINDMAP:



THE ESTIMATES COMMITTEE: A CRITICAL MECHANISM FOR FISCAL OVERSIGHT

WHY IN THE NEWS?

Lok Sabha Speaker Om Birla has reconstituted two key parliamentary committees for the year 2025–26. BJP MP Sanjay Jaiswal has been appointed as the Chairperson of the Committee on Estimates, which consists of 30 members from the Lok Sabha. The committee includes members from various political parties such as BJP, Congress, Samajwadi Party, Trinamool Congress, DMK, and Shiv Sena (UBT). The tenure of this committee will last until 30th April 2026. In another major appointment, BJP MP Baijayant Panda has been named the Chairperson

of the Committee on Public Undertakings. This 22-member committee comprises 15 members from the Lok Sabha and 7 from the Rajya Sabha. These committees play a crucial role in ensuring parliamentary oversight on government spending and the performance of public sector undertakings.

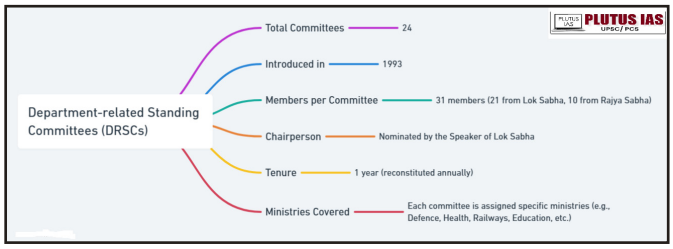
WHAT ARE DEPARTMENT-RELATED STANDING COMMITTEES?

Department-related Standing Committees (DRSCs) are permanent committees of the Indian Parliament established to strengthen legislative oversight over the functioning of ministries and departments of the Government of India. Introduced in 1993, these committees play a key role in scrutinizing government policies, budgets, and proposed legislation.

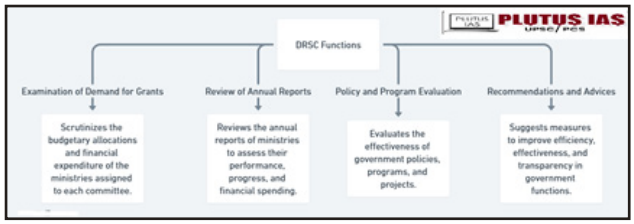
KEY FEATURES OF DRSCS:

1. **Structure:** There are currently 24 DRSCs, each consisting of 31 members – 21 from the Lok Sabha and 10 from the Rajya Sabha.
2. **Tenure:** The members are nominated every year for a period of one year.
3. **Jurisdiction:** Each committee is aligned to specific ministries or departments (e.g., Finance, Defence, Education, Health, etc.).
4. **Functions:** Examine the Demand for Grants of the related ministries. Scrutinise bills referred to them by the Speaker/Chairman. Consider annual reports of ministries. Review long-term policies and performance of government schemes

DEPARTMENT-RELATED STANDING COMMITTEES (DRSCS) AND COMPOSITIONS



FUNCTIONS OF DRSCSWHAT IS THE ESTIMATE COMMITTEE?



The Committee on Estimates, constituted for the first time in 1950, is a Parliamentary Committee consisting of 30 members, elected every year by the Lok Sabha from amongst its Members. The Chairperson of the Committee is appointed by the Speaker from amongst its members. A Minister cannot be elected as a member of the Committee, and if a member after selection to the Committee, is appointed a Minister, the member ceases to be a Member of the Committee from the date of such a ppointment.

Aspect	Details
Formation	✧ Constituted annually by the Speaker of the Lok Sabha. ✧ Formed according to Rule 310 of the Rules of Procedure of Lok Sabha ✧ No member of the Council of Ministers can be appointed.
Composition	✧ 30 members from the Lok Sabha. ✧ Members are nominated by the Speaker of the Lok Sabha based on their expertise and experience. ✧ Members are appointed for a term of 1 year. ✧ No government members are allowed on the committee.
Chairperson	✧ Elected by the Speaker from among the members of the committee. ✧ The current Chairperson is BJP MP Sanjay Jaiswal for 2025-26.
Party Representation	✧ Balanced representation from all parties based on the composition of the Lok Sabha.
Reconstitution	✧ The committee is reconstituted annually with members serving a one-year term.

MAJOR FUNCTIONS OF THE ESTIMATE COMMITTEE

1. **Examine Budget Estimates:** Scrutinises the detailed estimates of expenditure presented by various ministries and departments after the budget is passed by Parliament.

2. **Suggest Economies in Public Expenditure:** Recommends ways to bring about economies and reduce wastage in government spending without compromising policy objectives.
3. **Improve Efficiency and Organisation:** Proposes improvements in organisation, efficiency, and administrative reforms consistent with the policies underlying the estimates.
4. **Suggest Alternative Policies:** Recommends alternative policies or methods to enhance efficiency and economy in government administration.
5. **Check Proper Utilisation of Funds:** Examines whether the allocated money is well laid out within the limits of the policy implied in the estimates.
6. **Recommend Presentation Format:** Suggests the form and manner in which budget estimates should be presented to Parliament for better clarity and understanding.
7. **Select Ministries for Examination:** Chooses specific ministries or departments each year for detailed scrutiny rather than examining all at once.
8. **Promote Financial Accountability:** Enhances transparency and accountability in government expenditure by reporting findings and recommendations to the Lok Sabha.

ESTIMATE COMMITTEE ANALYSIS OF FUNCTIONING

1. **Examines Budget Estimates:** Reviews budget estimates of selected ministries post-approval to ensure funds align with policy and are used efficiently.
2. **Suggests Economies and Reforms:** Recommends cost-saving measures, organisational improvements, and administrative reforms to enhance efficiency.
3. **Advisory Role:** Provides non-binding recommendations that guide government and Parliament on expenditure management.
4. **Selective Scrutiny:** Examines only a few ministries each year for detailed analysis due to the vast scope of government spending.
5. **Promotes Transparency and Accountability:** Enhances financial oversight and accountability in public expenditure through detailed reports.
6. **Faces Operational Challenges:** Limited time, varying member expertise, political influences, and bureaucratic resistance can affect effectiveness.
7. **Improves Budget Discussions:** Supports informed parliamentary debates by providing detailed scrutiny of Demands for Grants. 8. Scope for Strengthening: Can improve through pre-budget reviews, better member training, mssssore time, and closer executive coordination.
8. **Scope for Strengthening:** Can improve through pre-budget reviews, better member training, more time, and closer executive coordination.

ESTIMATE COMMITTEE LIMITATIONS AND OVERALL DRSC LIMITATIONS

Aspect	Limitations of the Estimates Committee (EC)	Limitations of Department-related Standing Committees (DRSCs)
Time Constraints	✧ Limited time to thoroughly scrutinise complex and voluminous budget estimates, leading to incomplete analysis.	✧ One-year tenure limits specialisation; meetings often insufficient to cover all assigned ministries in detail.
Expertise of Members	✧ Members may lack adequate financial or technical expertise, affecting the depth and quality of scrutiny and recommendations.	✧ Members may have limited domain knowledge; the absence of dedicated research support reduces effectiveness.

Political Influence	✧ Political pressures and partisanship can affect objectivity, consensus-building, and focus on fiscal prudence.	✧ Party whips sometimes influence committee decisions; political considerations may override objective scrutiny.
Non-binding Recommendations	✧ Recommendations are advisory and not binding on the government, leading to possible disregard by ministries.	✧ Reports are not mandatory for government action; ministries may ignore or delay implementation of committee suggestions.
Bureaucratic Resistance	✧ Ministries may withhold information or resist committee scrutiny to protect their interests, limiting transparency.	✧ Ministries are sometimes reluctant to cooperate fully or provide timely information, hampering effective oversight.
Limited Scope	✧ Cannot examine budget estimates before Parliament votes; restricted to post-vote scrutiny, reducing preventive impact.	✧ Not all bills or issues are referred to DRSCs (e.g., some important bills bypass committees), limiting comprehensive examination.
Transparency Issues	✧ Some committee workings and minutes remain unpublished, reducing public accountability.	✧ Meetings are often held behind closed doors, with limited public access and transparency in deliberations and reports.
Attendance and Engagement	✧ Members' attendance and active participation can be weak, affecting committee functioning and the quality of reports.	✧ Low attendance and engagement of MPs at meetings reduce the effectiveness and continuity of committee work.

RECOMMENDATIONS TO IMPROVE THE EFFECTIVENESS OF DRSC AND EC

1. **Enable Pre-Budget Scrutiny:** Allow the Estimates Committee to examine budget proposals before Parliament votes, enabling proactive recommendations to improve expenditure planning rather than only post-vote reviews.
2. **Expand Membership and Expertise:** Include Rajya Sabha members in the Estimates Committee to widen representation. Provide specialized training and capacity building for members of both DRSCs and EC to deepen understanding of technical and financial matters.
3. **Increase Time and Resources:** Allocate more time and dedicated research support, including access to expert advisors and data analytics, to enable detailed examination of ministries and complex budgets.
4. Strengthen Follow-Up Mechanisms: Imple ment systematic monitoring and public disclosure of government actions on committee recommendations through periodic Action Taken Reports, ensuring accountability.
5. Improve Coordination Between Committees: Enhance coordination between DRSCs and the Estimates Committee to avoid duplication, cover all aspects of budget and policy scrutiny comprehensively, and share information effectively.
6. Enhance Transparency and Public Engagement: Publish committee reports promptly in accessible formats (including translations and summaries) and engage civil society and experts in consultations to increase public awareness and trust.
7. Broaden Scope to Include Policy Evaluation: Encourage committees to provide inputs on policy implications related to expenditure, not just financial scrutiny, for holistic oversight of government functioning.
8. Reduce Political Interference: Minimise party whip influence during committee deliberations to promote objective, evidence-based scrutiny and build consensus across party lines.

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CONCLUSION

The reconstitution of key parliamentary committees, such as the Estimates Committee and the Committee on Public Undertakings, marks a significant step in enhancing the parliamentary oversight mechanisms in India. These committees play a crucial role in scrutinising the government's expenditure, ensuring transparency, and improving the efficiency of public sector undertakings. The Department-related Standing Committees (DRSCs), introduced in 1993, serve as an essential tool for legislative scrutiny, working closely with ministries to ensure accountability and effectiveness in government operations. While both the Estimate Committee and DRSCs contribute to improving the quality of governance through rigorous examination of financial allocations, policies, and ministries, they face operational limitations. These include constraints on time, expertise, political influence, and resistance from the executive. However, recommendations to enhance their effectiveness, such as enabling pre-budget scrutiny, increasing member expertise, improving time allocation, and strengthening follow-up mechanisms—can address these challenges and improve the overall functioning of these committees.

CONTEMPT OF COURT IN INDIA: AN INDEPTH ANALYSIS.

WHY IN THE NEWS?

The law of contempt has come under public spotlight following remarks by Chief Justice of India-designate Justice B.R. Gavai. He stated unequivocally that there can be "no compromise if somebody hurts the dignity of court", in response to derogatory remarks made by BJP MP Nishikant Dubey against the Supreme Court and Justice Sanjiv Khanna. Justice Gavai also noted that "some other judges would have taken a different view", implying that stronger judicial action could have been warranted. This development has reignited debate over the limits of free speech vis-à-vis the authority and dignity of the judiciary.



WHAT IS CONTEMPT OF COURT?

Contempt of court refers to actions that defy or disrespect the authority, justice, and dignity of the court. It is broadly categorized into two types:

1. **Civil Contempt:** Willful disobedience to any judgment, decree, direction, order, writ, or other process of a court, or willful breach of an undertaking given to a court.
2. **Criminal Contempt:** Publication or doing of any act which: Scandalizes or tends to scandalize, or lowers or tends to lower the authority of any court; Prejudices, or interferes or tends to interfere with, the due course of any judicial proceeding; or Interferes or tends to interfere with, or obstructs or tends to obstruct, the administration of justice in any other manner.
3. **Purpose:** To ensure that the dignity and authority of the judiciary are maintained, and the administration of justice is not obstructed.
4. **Scope:** Applies to actions both inside and outside the courtroom that may affect the judicial process.
5. **Examples:** Disobeying court orders, making derogatory remarks about judges, or publishing materials that may influence ongoing proceedings.
6. **Legal Framework:** Governed by the Contempt of Courts Act, 1971, which outlines the definitions, procedures, and punishments related to contempt.
7. **Significance:** Acts as a safeguard for the judiciary to function independently and effectively without undue influence or obstruction.

CONSTITUTIONAL PROVISIONS RELATED TO CONTEMPT OF COURT

The Indian Constitution provides the judiciary with the power to punish for contempt:

1. **Article 129:** Declares the Supreme Court as a court of record with all the powers of such a court, including the power to punish for contempt of itself. This ensures that the apex court can independently safeguard its dignity without external interference.
2. **Article 215:** Grants every High Court the status of a court of record with the power to punish for contempt of itself. It mirrors the power given to the Supreme Court and ensures that state-level courts are equally empowered.
3. **Article 19(2):** Allows the State to impose reasonable restrictions on the freedom of speech and expression in the interests of, among other things, contempt of court. This acts as a constitutional check against misuse of freedom that could impede justice.
4. **Inherent Powers:** Courts of record inherently possess the authority to punish for contempt to maintain their dignity and ensure the proper administration of justice. This power does not stem from legislation alone but from their status as courts of record.
5. **Judicial Independence:** These provisions uphold the independence of the judiciary by empowering it to act against any interference. This autonomy is critical in a democratic setup where checks and balances must operate without fear or favour.
6. **Balance with Fundamental Rights:** While ensuring judicial authority, these provisions also maintain a balance with the fundamental right to freedom of speech. This encourages a culture where courts are respected without stifling democratic discourse.
7. **Legal Precedence:** These constitutional provisions have been upheld and interpreted in various landmark judgments, reinforcing their significance. Cases like Re: Arundhati Roy and Indirect Tax Practitioners Association v. R.K. Jain demonstrate how these powers are exercised in practice.

FEATURES OF CONTEMPT OF COURT

1. **Dual Nature:** The distinction between civil and criminal contempt allows the judiciary to address both non-compliance with court orders and actions that undermine the judicial process. For example, in Re: Vinay Chandra Mishra (1995), criminal contempt was invoked due to scandalizing the court.
2. **Punishment:** Under Section 12 of the Contempt of Courts Act, 1971, contempt can be punished with simple imprisonment for up to six months, a fine up to ₹2,000, or both. In Zaheera Sheikh v. State of Gujarat (2006), the Supreme Court sentenced her for contempt due to misleading the court.
3. **Defenses Available:** The Act recognizes defenses such as truth (if it is in the public interest), fair and accurate reporting of judicial proceedings, and fair criticism of judicial acts. In Subramanian Swamy v. Arun Shourie (2014), the court upheld that fair criticism does not amount to contempt.
4. **Procedural Safeguards:** The Act provides procedures for initiating contempt proceedings, including the requirement of consent from the Attorney General or Solicitor General for certain cases, ensuring checks and balances. For example, in Re: Arundhati Roy (2002), suo motu proceedings were initiated but highlighted the need for procedural rigor.
5. **Suo Motu Powers:** Courts can initiate contempt proceedings on their own motion to address actions that may affect the administration of justice. In In Re: Prashant Bhushan & Anr (2020), the Supreme Court initiated suo motu contempt proceedings over tweets.
6. **Scope of Application:** Applies to individuals, organizations, and even government bodies that may interfere with judicial proceedings or disobey court orders. For instance, in State of Bihar v. Subhash Singh (1997), the state was held accountable for non-compliance with court directions.
7. **Objective:** To maintain the authority and dignity of the judiciary, ensuring that the legal process is respected and upheld. This was reinforced in Surendra Yadav v. Ajay Agarwal (2021) where the Court emphasized the importance of preserving the image and trust in the judiciary.

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ISSUES WITH CONTEMPT OF COURT

1. **Vagueness and Subjectivity:** Terms like "scandalizing the court" are inherently vague and open to interpretation, leading to inconsistent or arbitrary application. For instance, in Re: Arundhati Roy (2002), the court held the author guilty for remarks in an affidavit, raising concerns about limits of criticism.
2. **Chilling Effect on Free Speech:** Fear of contempt action can deter individuals, including journalists and civil society members, from expressing genuine concerns about judicial conduct. In Indirect Tax Practitioners Association v. R.K. Jain (2010), the court clarified fair criticism is not contempt, but the apprehension still exists.
3. **Potential for Misuse:** The broad and discretionary powers vested in courts can sometimes be misused to shield judges or judicial functioning from public scrutiny. In Rajendra Sail v. M.P. High Court Bar Association (2005), the court ruled against contempt but highlighted the danger of misuse.
4. **Lack of Clarity on Limits:** There are no codified benchmarks on what exactly amounts to contempt, causing uncertainty. The Baradakanta Mishra v. Registrar of Orissa High Court (1974) case showcased divergent interpretations on criticizing administrative actions of judges.
5. **Overlapping Jurisdictions:** When both High Courts and the Supreme Court act on contempt matters involving the same facts, jurisdictional overlaps can cause procedural complications. This issue was visible in Delhi Judicial Service Association v. State of Gujarat (1991), involving both the SC and lower courts.
6. **Delayed Proceedings:** Lengthy contempt trials dilute the essence of swift justice and can discourage engagement with the judiciary. The Mulk Raj v. State of Punjab (1972) case took years to conclude, illustrating procedural delays in contempt adjudication.
7. **Impact on Public Perception:** Frequent invocation of contempt powers may portray the judiciary as intolerant of criticism. This concern was echoed during the In Re: Prashant Bhushan (2020) case, which ignited a public debate on judicial sensitivity to dissent.

RECOMMENDATIONS TO STRENGTHEN THE LAW

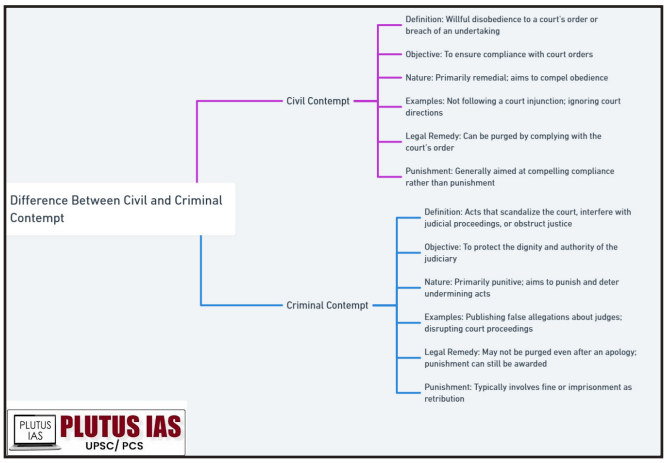
1. **Clarify Definitions:** Amend the Contempt of Courts Act, 1971, to explicitly define terms such as "scandalizing the court" or "lowering the authority of the judiciary." This will reduce ambiguity and help ensure consistency in judicial interpretation. For instance, in Re: Arundhati Roy (2002), lack of precise definitions led to debates over whether her affidavit criticizing the judiciary amounted to contempt.
2. **Enhance Transparency:** Create structured procedural guidelines for initiating contempt proceedings, including mandatory reasons in writing and oversight mechanisms. This can prevent arbitrary or politically motivated use. For example, in Re: Prashant Bhushan (2020), the absence of clear procedural thresholds in suo motu actions attracted public concern.
3. **Promote Judicial Accountability:** Encourage a culture where constructive criticism of judicial conduct is accepted and responded to with openness rather than defensiveness. In Indirect Tax Practitioners Association v. R.K. Jain (2010), the Court acknowledged the role of fair criticism in improving judicial standards.

4. **Periodic Review:** Institute a statutory mechanism for the periodic review of contempt laws in light of changing societal contexts and democratic values. For instance, after the public outcry following the Re: Prashant Bhushan judgment, legal scholars recommended legislative reforms to better align the law with freedom of expression.
5. **Training and Awareness:** Conduct regular workshops and training modules for judges, lawyers, and law enforcement officers to ensure a nuanced understanding of contempt laws. In the Surendra Yadav v. Ajay Agarwal (2021) case, the Court noted procedural lapses that could have been avoided with better awareness.
6. **Public Engagement:** Launch public education campaigns on what constitutes contempt of court and its implications. Transparency can enhance public trust, as seen in public discussions during the Arundhati Roy and Prashant Bhushan cases which showed a lack of clarity among the public.
7. **Alternative Dispute Resolution (ADR):** Before invoking contempt powers, courts should promote mediation or apology-based resolutions wherever appropriate. In Baradakanta Mishra v. Registrar of Orissa High Court (1974), the issue could potentially have been resolved through dialogue, avoiding prolonged litigation.

CONCLUSION

Contempt of court laws are essential for maintaining the authority and efficacy of the judiciary. However, it's crucial to balance this with the fundamental right to freedom of expression. By refining the definitions, ensuring transparency, and promoting accountability, India can uphold the dignity of its courts while fostering a culture of open and constructive dialogue. In a vibrant democracy, institutions gain respect not through suppression but through transparency and resilience. Strengthening contempt laws along these lines will ensure justice continues to be administered with integrity and public trust.

MINDMAP:



THE LANGUAGE DILEMMA: BRIDGING COMMUNICATION AND IDENTITY

WHY IN THE NEWS?

The Supreme Court recently dismissed a plea seeking directions to the governments of Tamil Nadu, Kerala, and West Bengal to implement the National Education Policy (NEP), 2020, including its three-language formula. The Court clarified that while it can issue directives under Article 32 of the Constitution to protect citizens' fundamental rights, it cannot compel states to adopt a particular policy like the NEP, 2020. This ruling underscores the federal structure of India and the autonomy of states in matters related to education, which is a subject in the Concurrent List.

NEW EDUCATION POLICY 2020



Article	Provision	Description
Art. 343	✧ Official Language of the Union	✧ Hindi in Devanagari script to be the official language of the Union. English to continue for 15 years.
Art. 344	✧ Commission and Committee of Parliament on Official Language	✧ Provides for the constitution of a Commission (after 5 years) and a Committee to examine language issues.
Art. 345	✧ Official language of a State	✧ The state legislature may adopt any one or more languages used in the state or Hindi as its official language.
Art. 346	✧ Official language for communication between one State and another, and with the Union	✧ English is the default, unless states agree to use Hindi or any other language.
Art. 347	✧ Special provision relating to the language spoken by a section of a state's population	✧ President may direct recognition of a language spoken by a substantial population in a state.
Art. 348	✧ Language to be used in the Supreme Court and High Courts	✧ English is to be used in all proceedings, unless Parliament provides otherwise.
Art. 349	✧ Special procedure for the enactment of laws relating to language	✧ Restrictions on making laws under Articles 348(2) and 345 during the initial 15 years.
Art. 350	✧ Right to submit representation for redress of grievances in any language used in the Union or a State	✧ Any person can submit a representation in any language used in the Union or the State.
Art. 350A	✧ Facilities for instruction in the mother tongue at the primary stage	✧ Every State must provide facilities for primary education in the mother tongue for linguistic minority children.
Art. 350B	✧ Special Officer for Linguistic Minorities	✧ Appointed by the President to investigate matters related to linguistic minorities and report to the President.
Art. 351	✧ Directive for the development of Hindi	✧ Union Government to promote the spread and development of Hindi for use as a medium of expression.
Eighth Schedule	✧ Languages recognised by the Constitution	✧ Contains **22 scheduled languages** (originally 14); inclusion helps in promotion and preservation.

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WHAT IS THE THREE-LANGUAGE FORMULA(TLF)

The Three-Language Formula is an educational policy introduced in the 1968 National Policy on Education (NEP) to promote multilingualism and national integration. It mandates that students in India learn three languages: their regional language (mother tongue), Hindi, and English. NEP 2020 retains this framework but allows states and students flexibility in choosing languages, ensuring at least two are Indian languages



EVOLUTION OF THE THREE-LANGUAGE FORMULA

Commission / Policy	Year	Key Recommendations Related to Language in Education	Other Language-Related Recommendations
Kothari Commission	1964–66	✧ Proposed the Three-Language Formula: 1. Regional language/mother tongue 2. Hindi (for non-Hindi states) or a modern Indian language (for Hindi-speaking states) 3. English	✧ Emphasised language's role in national integration ✧ Recommended better language teaching methods
National Policy on Education (NPE)	1968	✧ Officially introduced the Three-Language Formula ✧ Highlighted the importance of Hindi and English in communication	✧ Development of regional languages ✧ Preservation of linguistic diversity
National Policy on Education (NPE)	1986	✧ Retained the Three-Language Formula ✧ Acknowledged challenges in implementation ✧ Promoted mother-tongue-based primary education	✧ Promoted the use of modern Indian languages ✧ Recognised English as a link language
Ramamurti Committee	1990	✧ Emphasised improving the quality of language education ✧ Advocated mother tongue as a medium of instruction at all levels	✧ Supported linguistic inclusivity in educational institutions
Acharya Ramamurti Review Committee	1991	✧ Called for strengthening the Three-Language Formula ✧ Stressed on better training for language teachers	✧ Proposed measures to safeguard linguistic minorities

National Curriculum Framework (NCF)	2005	✧ Reaffirmed multilingualism in education ✧ Promoted bilingual teaching methods	✧ Emphasised context-based language learning
National Education Policy (NEP)	2020	✧ Retained Three-Language Formula with flexibility for states ✧ At least two languages to be Indian ✧ Emphasis on mother-tongue-based education	✧ Promoted Sanskrit as optional ✧ No imposition of any language on states

THREE-LANGUAGE FORMULA IN THE NATIONAL EDUCATION POLICY 2020

1. **Retained with Flexibility:** NEP 2020 retains the existing Three-Language Formula but allows greater flexibility for states to implement it as per their regional and cultural needs.
2. **No Language Imposition:** The policy does not impose any particular language on any state. Language choices will be left to the students, parents, and local authorities.
3. **Two Indian Languages Mandatory:** Among the three languages taught, at least two must be Indian languages. This aims to promote indigenous linguistic diversity.
4. **Mother Tongue as Medium of Instruction:** Emphasis on teaching in the mother tongue or regional language as the medium of instruction up to at least Grade 5, preferably till Grade 8.
5. **Promotion of Classical and Regional Languages:** Classical languages like Sanskrit will be available as an optional subject at all school levels. The policy also promotes teaching and preservation of tribal and endangered languages.
6. **Introduction of Foreign Languages:** Foreign languages such as Korean, Japanese, French, Spanish, German, etc., may be introduced at the secondary level to increase global exposure.
7. **Focus on Multilingualism:** NEP 2020 strongly supports multilingualism to improve cognitive abilities, creativity, and cultural understanding among students.
8. **Digital and Technological Support:** Content will be made available in regional languages through digital platforms like DIKSHA, and AI-based translation tools will be developed to support learning.

ADVANTAGES OF THE THREE-LANGUAGE FORMULA

1. **Promotes National Integration:** Learning multiple Indian languages fosters a sense of unity in diversity and encourages cross-cultural understanding among regions.
2. **Preserves Linguistic Heritage:** It helps in protecting and promoting regional, tribal, and classical languages, many of which are at risk of extinction.
3. **Enhances Cognitive Abilities:** Multilingualism in early education has been shown to improve memory, problem-solving, and multitasking skills in children.
4. **Improves Communication Skills:** Knowing more than one Indian language along with English expands a student's communicative reach within and outside the country.
5. **Supports Mother-Tongue Education:** Emphasising the mother tongue as the medium of instruction in early years leads to better comprehension and learning outcomes.
6. **Wider Career Opportunities:** Multilingual proficiency increases employability in government services, translation, diplomacy, media, and education sectors.
7. **Boosts Social Inclusion:** Promoting minority and regional languages ensures inclusiveness and respect for all linguistic communities, especially marginalised groups.
8. **Facilitates Migration and Mobility:** Knowing multiple regional languages makes it easier for individuals to adapt and work across different states in India.
9. **Reduces Language Dominance:** Encourages linguistic equity by balancing the dominance of English and Hindi with the promotion of other Indian languages.

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ISSUES WITH THE THREE-LANGUAGE FORMULA

1. **Lack of Uniform Implementation:** Different states follow different language policies—for example, Tamil Nadu has historically resisted the three-language formula and follows a two-language system (Tamil and English).
2. **Political and Regional Resistance:** There is perceived imposition of Hindi in non-Hindi speaking states, especially in the South and Northeast, which often view the policy as a threat to their linguistic identity.
3. **Shortage of Language Teachers:** Many schools, particularly in rural or tribal areas, face an acute shortage of qualified teachers for the third language, limiting effective implementation.
4. **Burden on Students:** Learning three languages simultaneously may put academic pressure on students, especially when the third language has little relevance to their immediate environment or goals.
5. **Resource and Infrastructure Gaps:** Lack of adequate teaching materials, textbooks, and technology-based resources in regional and tribal languages hampers quality education.
6. **Urban-Rural Divide:** Urban schools may offer a wider selection of languages and better teaching resources, while rural schools often struggle to even provide basic bilingual education.
7. **Implementation Ambiguity:** NEP 2020 allows flexibility to states, but there is no clear mechanism or accountability to ensure that the core objectives of the three-language formula are achieved.
8. **Neglect of Tribal and Endangered Languages:** Despite policy emphasis, in practice, tribal and minority languages remain underrepresented in curricula and formal instruction.
9. **Limited Functional Use:** Students may not find practical use for the third language, especially if it's not widely spoken in their region or required for employment.

WAY FORWARD FOR BALANCING UNITY AND DIVERSITY

1. **Promote Linguistic Federalism:** Encourage a decentralised approach where states have the autonomy to choose their language policies within a broad national framework, ensuring both unity and regional identity.
2. **Encourage Voluntary Multilingualism:** Instead of imposing languages, create an incentive-based model where students are motivated to learn additional Indian languages through scholarships, cultural exchanges, and career benefits.
3. **Invest in Language Infrastructure:** Improve the availability of qualified teachers, textbooks, digital content, and AI-based translation tools for all Indian languages, including tribal and endangered ones.
4. **Strengthen Mother-Tongue Education:** Focus on early education in the mother tongue to enhance learning outcomes while gradually integrating other Indian and global languages for broader exposure.
5. **Revive and Digitise Endangered Languages:** Use technology to document, digitise, and teach endangered languages, preserving linguistic heritage and empowering tribal and minority communities.
6. **National Language Policy Consensus:** Initiate an inclusive dialogue among the centre and states, language experts, and civil society to develop a consensus-based language policy that respects both unity and diversity.
7. **Cultural Integration Through Education:** Integrate folklore, regional literature, music, and local history into curricula to promote mutual cultural respect and emotional integration across linguistic groups.
8. **Media and Technology in Local Languages:** Expand public broadcasting, e-learning platforms, and e-governance services in multiple Indian languages to increase access and participation.
9. **Awareness and Sensitisation Campaigns:** Promote public awareness about the value of linguistic diversity and the need for national unity, especially among youth through school programs and mass media.

CONCLUSION

India's linguistic diversity is both a strength and a challenge. The Three-Language Formula, as

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envisioned in NEP 2020, is a well-intentioned attempt to foster national integration, promote multilingualism, and preserve the country's rich linguistic heritage. However, its success hinges on sensitive implementation, respect for federal principles, and investment in educational infrastructure. While the recent Supreme Court ruling reaffirms the autonomy of states in educational matters, it also highlights the importance of cooperative federalism in addressing language-related concerns. A balanced, inclusive, and flexible approach, which respects regional aspirations while promoting unity, is essential for a harmonious linguistic future. Through dialogue, decentralised policymaking, and digital innovation, India can achieve a fine equilibrium between national cohesion and cultural diversity.

PRESIDENTIAL REFERENCE AND ARTICLE 143: A CONSTITUTIONAL DIALOGUE BETWEEN THE EXECUTIVE AND JUDICIARY

WHY IN THE NEWS?

In May 2025, President Droupadi Murmu made a significant reference to the Supreme Court under Article 143 of the Constitution, seeking its advisory opinion on 14 constitutional questions. This was prompted by a recent Supreme Court judgment mandating timelines for gubernatorial and presidential assent to state bills. The reference questions whether such timelines can be judicially imposed and the justiciability of executive actions under Articles 200, 201, and 142. It rekindles debates on federalism, separation of powers, and constitutional conventions, marking only the 16th invocation of Article 143 since 1950.



WHAT IS ARTICLE 143 OF THE INDIAN CONSTITUTION?

Text of Article 143: Article 143 empowers the President of India to seek the advisory opinion of the Supreme Court on questions of law or fact that are of public importance. It comprises two clauses:

Clause (1): Allows the President to refer any question of law or fact of public importance to the Supreme Court for its opinion.

Clause (2): Permits the President to seek the Court's opinion on disputes arising from pre-Constitution treaties, agreements, or engagements.

KEY FEATURES OF ARTICLE 143:

1. **Advisory Nature:** The Supreme Court's opinion under Article 143 is advisory and not binding on the President. Despite its non-binding nature, such opinions carry significant persuasive value and are generally respected by the executive and judiciary.
2. **Judicial Discretion:** The Supreme Court has the discretion to decline answering a reference. Notably, in 1993, the Court declined to provide an opinion on the Ram Janmabhoomi-Babri Masjid dispute, deeming it inappropriate for advisory jurisdiction as the matter was sub judice.
3. **Historical Usage:** Since 1950, Article 143 has been invoked multiple times to seek clarity on complex constitutional matters.

PROMINENT INSTANCES INCLUDE:

Delhi Laws Act Case (1951): Addressed the extent of legislative delegation.

Kerala Education Bill (1958): Examined minority rights in education.

Berubari Union Case (1960): Determined that ceding Indian territory requires a constitutional amendment.

Special Courts Bill (1978): Clarified the validity of setting up special courts for politicians.

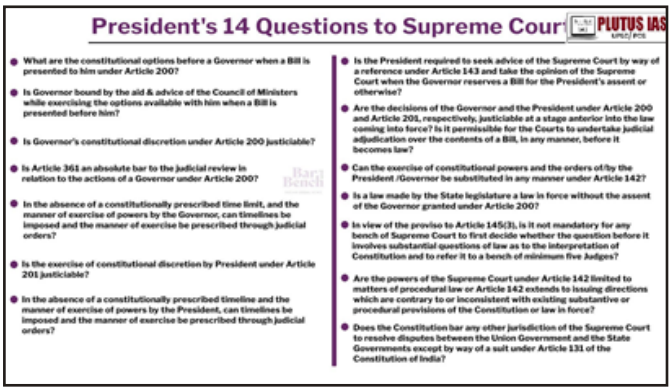
Third Judges Case (1998): Established guidelines for judicial appointments, reinforcing the collegium system.

4. **Recent Developments (2025):** In April 2025, the Supreme Court ruled that the President must

provide clear reasons when withholding assent to a bill, especially after seeking the Court's advice under Article 143.Following this, in May 2025, President Droupadi Murmu invoked Article 143(1), seeking the Supreme Court's advisory opinion on 14 constitutional questions related to the timelines for granting assent to state legislation.

ROLE OF PRESIDENT & GOVERNOR UNDER ARTICLE 143

1. **Exclusive Power of the President:** Only the President can invoke Article 143, reinforcing the constitutional design of presidential neutrality. Neither Parliament nor the Prime Minister can directly use this provision. This ensures the President serves as a non-partisan link between the Executive and the Judiciary
2. **Invocation Based on Council of Ministers' Advice:** As per Article 74(1), the President must act on the advice of the Council of Ministers. This makes every reference a political decision, despite being made through a constitutional office.
3. **Governor's Role—Indirect but Crucial:** Governors cannot use Article 143, but their actions often lead to its invocation. Delays in granting assent under Articles 200 and 201 frequently trigger legal ambiguity, prompting a Presidential reference.
4. **Example:** 2024 Presidential Reference: President Droupadi Murmu made a reference under Article 143 regarding timelines for gubernatorial and presidential assent. This followed repeated concerns by states like Tamil Nadu and Kerala over delays in bill approval.
5. **Delayed Assent and Federal Conflict:** The Tamil Nadu Prohibition of Online Gambling Bill (2022) was delayed for over a year by the Governor, which was cited by the Supreme Court in its 2023 verdict emphasizing the need for constitutional compliance by Governors.
6. **Historical Case—Kerala Education Bill (1958):** Governor forwarded the bill to the President for clarity, leading to a reference. It showed how gubernatorial indecision indirectly activates Article 143.
7. **Legal Basis in Government Sources:** According to a March 2024 report in The Hindu, the President's reference under Article 143 was prompted after legislative assemblies of Tamil Nadu, Telangana, and West Bengal passed resolutions decrying prolonged gubernatorial delays in bill assent. A PIB press release also noted that the Ministry of Law and Justice took cognizance of these complaints, following which the Union Council of Ministers advised the President to seek the Supreme Court's opinion. The move was widely seen as an effort to resolve the growing executive-legislative standoff in opposition-led states.



EVOLUTION AND SIGNIFICANCE OF PRESIDENTIAL REFERENCES

S. No.	Year	Reference Title	Key Legal Question	Supreme Court's Advisory Opinion	Source (The Hindu/ PIB/Indian Express)
1	1951	✧ Delhi Laws Act Case	✧ Validity of delegated legislation	✧ Permissible within limits under Article 245	✧ The Hindu Archives, SC Website
2	1958	✧ Kerala Education Bill	✧ Rights of minority institutions under Article 30	✧ Upheld partially, balanced with Directive Principles	✧ AIR 1959 SC 956, PIB Archives

3	1960	✧ Berubari Union Case	✧ Whether Indian territory can be ceded without amendment	✧ Constitutional amendment under Article 368 required	✧ The Hindu, SC Judgments Database
4	1965	✧ Keshav Singh Case	✧ Legislative privileges vs. judicial authority	✧ Asserted judicial oversight to maintain checks and balances	✧ The Indian Express, Constitution Bench Reports
5	1974	✧ Presidential Election Dispute	✧ Can polls be conducted despite legislative vacancies?	✧ Yes, subject to legal scrutiny	✧ PIB Legislative Review (1974)
6	1978	✧ Special Courts Bill	✧ Constitutional validity of special courts for politicians	✧ Valid, but vague references can be refused	✧ The Hindu Editorial, SC Reports
7	1998	✧ Third Judges Case	✧ Judicial appointments and collegium system	✧ Defined collegium norms, became de facto binding	✧ Indian Express Legal Affairs (1998), PIB Release
8	2004	✧ 9th Schedule Review	✧ Can laws in 9th Schedule be reviewed under Article 13?	✧ Yes, if they violate basic structure	✧ The Hindu, SC Verdict Analysis
9	2012	✧ 2G Spectrum Cancellation	✧ Was the SC's order impacting executive policy?	✧ Clarified scope of judicial policy interference	✧ Indian Express Archives (2012)
10	2015	✧ Uniform Civil Code	✧ Feasibility of implementing UCC	✧ Declined, marked as legislative domain	✧ The Hindu Editorials, Law Ministry Docs
11	2017	✧ Jallikattu Ordinance	✧ Cultural rights vs. animal welfare laws	✧ No clear ruling, returned unanswered	✧ PIB Press Release (2017)
12	2019	✧ Kashmir Reorganisation	✧ Legality of bifurcation of J&K	✧ Matter pending; no advisory issued	✧ The Hindu (2019), Ministry of Home Affairs
13	2020	✧ Farm Laws Protest	✧ Role of Centre and States in agricultural laws	✧ Avoided direct opinion; upheld protest rights	✧ Indian Express Coverage (2020), PIB Statements
14	2022	✧ Electoral Bonds & Transparency	✧ Whether electoral bonds violate Right to Information	✧ Referred for hearing; advisory still awaited	✧ The Hindu Legal Desk (2022)
15	2023	✧ SC Verdict on Governor Delays	✧ Constitutional timelines under Articles 200/201	✧ Prompted need for Article 143 reference	✧ PIB and SC Notifications (2023)
16	2024	✧ Timelines for Bill Assent	✧ Can judiciary mandate time-bound assent by President/Governor?	✧ Awaiting SC opinion as of May 2025	✧ The Hindu (April 2024), PIB Press Release

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FEDERALISM AND INTER-GOVERNMENTAL TENSIONS

1. **Recent Invocation Reflecting Federal Strains:** In May 2025, President Droupadi Murmu referred 14 questions to the Supreme Court under Article 143(1), seeking clarity on the timelines for gubernatorial assent to state bills. This move followed the Supreme Court's April 2025 judgment criticizing delays by the Tamil Nadu Governor in assenting to 14 bills passed by the state legislature. The Presi-dent's reference has been perceived by some, including Tamil Nadu Chief Minister M.K. Stalin, as an attempt by the Union government to challenge the judiciary's au-thority and undermine state autonomy .
2. **Political Reactions and Allegations:** The invocation of Article 143 in this con-text has sparked political controversy. Chief Minister Stalin accused the Union government of using the President to subvert the Supreme Court's judgment and to legitimize the Governor's delays in assenting to state legislation. He urged non-BJP-ruled states to unite in defending the Constitution and the autonomy of state legislatures .
3. **Judiciary's Stance on Separation of Powers:** Chief Justice of India Bhushan Gavai emphasized the equal status of the judiciary, executive, and legislature un-der the Constitution, asserting that only the Constitution holds supreme authority. This statement underscores the judiciary's commitment to maintaining the balance of power among the three branches of government .
4. **Legal Debates on Timelines for Assent:** The Presidential reference has ignited legal debates on whether the judiciary can impose timelines on the President and Governors for assenting to state bills. While some legal experts argue that such timelines enhance efficiency and prevent undue delays, others contend that Arti-cles 200 and 201 of the Constitution allow discretionary interpretation, as they do not prescribe specific limits .
5. **Historical Context of Article 143:** Since independence, Article 143 has been invoked at least 14 times to seek the Supreme Court's advisory opinion on matters of public importance. These references have played a pivotal role in shaping con-stitutional jurisprudence and resolving inter-institutional conflicts .
6. **Non-Binding Nature of Advisory Opinions:** The Supreme Court's opinions un-der Article 143 are advisory and not legally binding. However, they carry significant persuasive value and are usually respected by the executive and the courts. This non-binding nature implies that the President or Parliament may, theoretically, choose to disregard the Court's advisory opinion, although such a course may risk constitutional crisis and political controversy.
7. **Implications for Federalism:** The recent use of Article 143 highlights the ongo-ing tensions in India's federal structure, particularly concerning the roles and re-sponsibilities of Governors and the interplay between state and central authorities. The outcome of the Supreme Court's advisory opinion may have significant impli-cations for the balance of power in India's federal system.

LIMITATIONS OF ARTICLE 143

1. **Non-Binding Nature of Advisory Opinions:** The Supreme Court's opinions un-der Article 143 are advisory and not legally binding. This was evident in the recent invocation by President Droupadi Murmu in May 2025, where the Court's opinion on the timelines for gubernatorial assent to state bills does not compel action but serves as guidance. Legal experts have noted that such advisory opinions, while influential, do not carry the force of law.
2. **Potential for Political Instrumentalization:** The use of Article 143 can some-times be perceived as a political tool rather than a genuine quest for legal clarity. For instance, the 2025 reference by the President was viewed by some as an at-tempt by the Union government to challenge the judiciary's authority and influence the political narrative, especially concerning the Tamil Nadu Governor's delay in assenting to state legislation.
3. **Judicial Caution in Advisory Jurisdiction:** The Supreme Court has, at times, exercised caution

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in responding to presidential references, especially when the questions posed are vague or politically sensitive. In the Special Courts Bill case (1978), the Court emphasized that it could decline to answer a reference if the questions were not specific or if they encroached upon the functions of the legisla-ture.

4. **Challenges in Enforcing Advisory Opinions:** Even when the Supreme Court provides an advisory opinion, there is no mechanism to enforce compliance. This limitation was evident in the aftermath of the 2025 reference, where the Court's opinion on setting timelines for gubernatorial assent did not result in immediate leg-islative or executive action, highlighting the advisory opinion's limited practical im-pact.
5. **Risk of Undermining Judicial Authority:** Frequent or strategic use of Article 143 by the executive could potentially undermine the judiciary's authority. If the ex-ecutive selectively seeks advisory opinions and then chooses not to act on them, it may erode the perceived sanctity and influence of the Supreme Court's guidance, leading to questions about the judiciary's role in the constitutional framework.
6. **Ambiguity in Constitutional Provisions:** The Constitution does not specify the circumstances under which the President should seek the Supreme Court's opin-ion, leading to ambiguity. This lack of clarity can result in inconsistent use of Arti-cle 143, with decisions influenced by political considerations rather than constitu-tional necessity.
7. **Limited Scope for Addressing Urgent Issues:** The process of seeking and ob-taining an advisory opinion under Article 143 can be time-consuming, making it less effective for addressing urgent constitutional crises. In situations requiring immediate resolution, the delays inherent in this process may render the advisory opinion less impactful or even obsolete by the time it is delivered.

JUDICIAL REVIEW AND SEPARATION OF POWERS

1. **Supreme Court's Mandate on Presidential Assent:** In April 2025, the Supreme Court ruled that the President must provide clear reasons when withholding assent to a bill, especially after seeking the Court's advice under Article 143. This decision emphasizes accountability and reinforces the principle that even the highest consti-tutional authorities are subject to judicial scrutiny.
2. **Judicial Review of Executive Decisions:** The Court affirmed that the President and Governors are not beyond the reach of judicial review. This stance ensures that executive actions, including assent to state bills, can be examined for constitu-tionality, thereby maintaining the balance of power among the branches of govern-ment.
3. **Setting Timelines for Assent:** Addressing delays in gubernatorial assent, the Supreme Court prescribed a three-month timeline for the President to decide on bills referred by Governors. This move aims to prevent indefinite withholding of as-sent, ensuring timely legislative processes.
4. **Encouraging Use of Article 143:** The Court suggested that the President should seek its opinion under Article 143 when a Governor reserves a bill on grounds of perceived unconstitutionality. This recommendation seeks to involve the judiciary proactively in resolving constitutional ambiguities.
5. **Comparative Constitutional Practices:** Drawing parallels with other democra-cies, the Supreme Court highlighted that in the Republic of Kiribati, the head of state must refer potentially unconstitutional bills to the judiciary. Such comparisons underscore the global relevance of judicial oversight in legislative processes mint.
6. **Reactions to Judicial Activism:** The Court's proactive stance has sparked de-bates on judicial overreach. Vice President Jagdeep Dhankhar criticized the judici-ary for setting deadlines for the President, arguing that it encroaches upon the ex-ecutive's domain. This discourse reflects the ongoing tension in delineating the boundaries of each governmental branch.
7. **Implications for Federalism:** These judicial interventions have significant im-plications for India's federal structure. By ensuring that state legislatures' decisions are not unduly hindered

by executive delays, the judiciary reinforces the autonomy and efficacy of state governments within the union.

CONCLUSION

Presidential references under Article 143 symbolize a unique constitutional mecha-nism of dialogue between the executive and judiciary. While non-binding, these opinions have historically shaped Indian constitutional law and polity. In times of increasing Centre-State friction, judicial advisory opinions become crucial tools for preserving the federal balance, ensuring accountability of constitutional functionar-ies, and strengthening democratic governance. However, for Article 143 to remain effective, it must be invoked with clarity, respect for institutional roles, and com-mitment to constitutional morality.

PRELIMS QUESTIONS

1. Consider the following statements about Civil Services Day in India:

1. It is observed every year on April 21 to commemorate the birth anniversary of Sardar Vallabhbhai Patel.
2. The Prime Minister's Awards for Excellence in Public Administration are presented on this day.
3. The first Civil Services Day was observed in 1950.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 only
(c) 1 and 3 only (d) 2 and 3 only

2. Consider the following statements:

1. The word "federalism" is explicitly mentioned in the Indian Constitution.
2. The Indian Constitution allows the Parliament to alter the boundaries of States without their consent.
3. Federalism is part of the Basic Structure of the Constitution.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

3. Which of the following functions are performed by the Election Commission of India under its constitutional and statutory mandate?

1. Supervising elections to the Lok Sabha and State Legislative Assemblies
2. Advising the President on disqualification of MPs
3. Declaring results of opinion polls
4. Conducting elections to the offices of the President and Vice-President

Select the correct answer using the code below:

(a) 1, 2 and 4 only (b) 1 and 3 only
(c) 2, 3 and 4 only (d) 1, 2, 3 and 4

4. With reference to the Committee on Estimates and Department-related Standing Committees (DRSCs), consider the following statements:

1. The Committee on Estimates consists of 30 members, all from the Lok Sabha.
2. The Department-related Standing Commit-tees (DRSCs) were introduced in 1993, and each committee has 21 members from the Lok Sabha and 10 members from the Rajya Sabha
3. The primary function of the Committee on Public Undertakings is to examine the annual financial expenditure of the central government.

How many of the above-given statements are correct?

(a) Only one (b) Only two
(c) All three (d) None

5. Which of the following is NOT a recognized defense under the Contempt of Courts Act, 1971?

(a) Truth if in public interest.
(b) Fair criticism of a judicial act.
(c) Fair and accurate reporting of judicial proceedings.
(d) Apology tendered without any remorse.

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6. With reference to the Three-Language Formula in India, consider the following statements:

1. The Three-Language Formula was first officially introduced in the National Policy on Education, 1986.
2. As per the NEP 2020, at least two of the three languages taught must be Indian languages.
3. The Constitution of India mandates the use of three languages in school education through Article 350B.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 2 only
(c) 1 and 3 only (d) 1, 2 and 3

7. With reference to the Supreme Court's advisory jurisdiction under Article 143, consider the following statements:

1. The President acts on the advice of the Council of Ministers when invoking Article 143.
2. The Supreme Court's opinion in such references is binding on the Government of India.
3. The bench hearing any Article 143 reference must have at least five judges.

Which of the above statements are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

ANSWER-KEY

1. (b)	2. (b)	3. (a)	4. (b)
5. (d)	6. (b)	7.(c)	

MAINS QUESTIONS

1. "The Indian Civil Services have long served as the 'steel frame' of the nation. However, to meet the aspirations of a 21st-century Viksit Bharat, structural reforms are necessary." Critically examine the role, issues, and required reforms in India's Civil Services.

(250 words, 15 marks)

2. The federal structure of India, though centrally tilted in its constitutional design, has evolved into a dynamic and cooperative federal framework over the years. Critically examine this evolution and discuss the key challenges and reforms needed to strengthen Indian federalism.

(250 words, 15 marks)

3. Examine the significance of the Supreme Court's intervention in the Anoop Baranwal case (2023) with respect to the appointment process of Election Commissioners. How can this strengthen the autonomy of the ECI.

(250 words, 15 marks)

4. Discuss the role and significance of the Department-related Standing Committees (DRSCs) and the Committee on Estimates in ensuring effective parliamentary oversight over government spending and public sector undertakings.

(250 words, 15 marks)

5. What is contempt of court? Critically examine the relevance of contempt laws in a democracy, especially in the context of judicial accountability and freedom of speech.

(250 words, 15 marks)

6. The Three-Language Formula seeks to balance the goal of national integration with the preservation of linguistic diversity." Critically evaluate the constitutional, educational, and federal dimensions of this policy in light of NEP 2020.

(250 words, 15 marks)

7. Discuss the constitutional and functional relevance of Article 143 in light of recent presidential references, especially those involving gubernatorial delays in bill assent. How does this mechanism safeguard the federal structure of India?

(250 words, 15 marks)

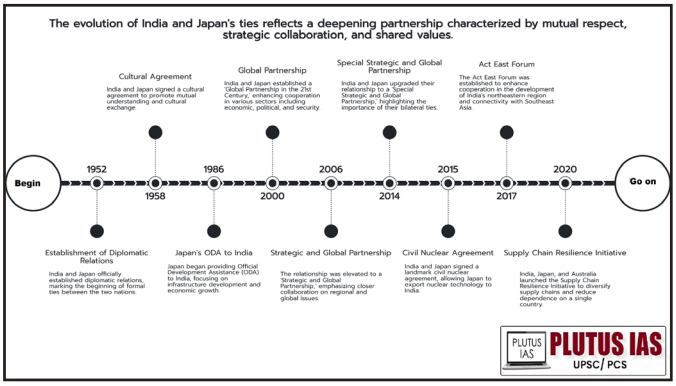


INDIA-JAPAN PERENNIAL BILATERAL RELATIONSHIP

WHY IN THE NEWS?

India and Japan have deepened their strategic partnership with the co-production of "Unicorn Masts" naval technology, marking their first joint defence manufacturing initiative. This reflects Japan's gradual easing of constitutional restrictions and opens avenues for wider collaboration in submarines, fighter jets, and cyber defence. Prime Minister Modi's upcoming visit to Japan in 2025 is expected to focus on strengthening defence, economic, and technological cooperation. While Japan remains a key investor in Indian infrastructure and the two nations engage actively through QUAD and joint military exercises, high-tech and defence ties have lagged. Challenges such as trade imbalance, project delays, and limited and people-to-people relations persist. However, the recent defence breakthrough signals a maturing partnership aligned with a shared vision for a free, open, and secure Indo-Pacific.

INDIA AND JAPAN'S TIES EVOLUTION



INDIA AND JAPAN COOPERATION AREAS

1. **Defence & Security:** Joint exercises (JIMEX, Dharma Guardian, MILAN), 2+2 dialogues, ACSA agreement, and shared Indo-Pacific vision.
2. **Economic & Trade:** CEPA (2011), major Japanese FDI, industrial competitiveness, and startup collaboration.
3. **Infrastructure:** Projects like the Mumbai-Ahmedabad bullet train and the Delhi-Mumbai Industrial Corridor, with Japanese funding and expertise.
4. **Science & Technology:** Cooperation in AI, semiconductors, quantum tech, and joint space missions (e.g., ISRO-JAXA lunar mission).
5. **Clean Energy & Climate:** Partnership on green hydrogen, renewables, electric mobility, and carbon neutrality goals.
6. **Skill Development:** TITP and SSW programs, language training, and workforce exchange.
7. **Cultural & People-to-People Ties:** Shared Buddhist heritage, academic exchanges, and growing youth engagement.
8. **Regional Connectivity & Strategic Cooperation:** Support for Indo-Pacific stability, regional infrastructure, and multilateral frameworks like the Quad.

JAPAN AS A PERENNIAL FRIEND OF INDIA

1. **Strategic Partner in the Indo-Pacific:** Japan is a like-minded partner in ensuring a Free, Open, and Inclusive Indo-Pacific, balancing regional power dynamics and ensuring maritime security.
2. **Reliable Defence Collaborator:** Japan is strengthening India's defence capabilities through joint military exercises, defence

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dialogues, and co-production initiatives like the Unicorn Masts.

3. **Key Source of Infrastructure Financing:** Through JICA, Japan funds major projects including bullet trains, metro systems, and industrial corridors, transforming India's infrastructure landscape.
4. **Top Foreign Investor:** Japan is among the top 5 investors in India, boosting manufacturing, innovation, and employment, especially through the Make in India initiative.
5. **Technology and Innovation Support:** Japan helps India advance in critical tech areas like AI, robotics, semiconductors, green hydrogen, and digital public infrastructure.
6. **Energy and Climate Cooperation:** Japan is a vital partner in India's clean energy transition, supporting green growth, electric mobility, and carbon neutrality goals.
7. **Skill Development and Workforce Mobility:** Programs like TITP and SSW offer Indian youth skill training and employment in Japan, enhancing human capital and bilateral ties.
8. **Cultural and Civilizational Bond:** Centuries-old Buddhist and spiritual links reinforce goodwill and people-to-people trust, enriching soft power diplomacy.
9. **Global Governance Collaboration:** India and Japan jointly advocate for UN Security Council reforms, equitable global order, and rule-based multilateralism through platforms like G4, QUAD, and G20.

INDIA AND JAPAN'S PARTNERSHIP CONCERNS AREAS

1. **Underwhelming Defence Cooperation:** Despite shared security interests, defence trade and technology transfer remain limited compared to potential.
2. **Slow Progress in High-Tech Collaboration:** Cooperation in advanced technologies like semiconductors, robotics, and AI is still in its early stages and needs acceleration.
3. **Trade Imbalance:** India's trade deficit with Japan continues, with limited access for Indian agricultural and pharma exports to the Japanese market.
4. **Low Utilisation of CEPA:** The 2011 Comprehensive Economic Partnership Agreement (CEPA) has not been fully leveraged due to non-tariff barriers and regulatory challenges.
5. **Delays in Infrastructure Implementation:** Japanese-funded infrastructure projects in India often face land acquisition issues, bureaucratic delays, and cost overruns.
6. **Limited People-to-People Ties:** Low tourism, restricted visa access, and fewer Indian professionals in Japan have slowed cultural and social integration.
7. **Language and Cultural Barriers:** Language differences hinder deeper cooperation in business, education, and skill exchange programs.
8. **Lack of Collaboration in Multilateral Innovation Platforms:** Joint R&D, university collaboration, and tech-startup linkages remain limited despite mutual interest in innovation.

WAY TO STRENGTHEN THE PARTNERSHIP

1. **Deepen Defence & Security Ties:** Expand joint production beyond Unicorn Masts to include submarines, drones, and cyber defence; enhance interoperability through more frequent tri-service exercises.
2. **Revamp CEPA for Balanced Trade:** Review and modernise the Comprehensive Economic Partnership Agreement (CEPA) to reduce non-tariff barriers and boost Indian exports (e.g. pharma, agri-products).
3. **Accelerate High-Tech Collaboration:** Establish joint innovation hubs in semiconductors, AI, green hydrogen, quantum tech, and robotics; promote co-investment in R&D and start-ups.
4. **Fast-Track Infrastructure Projects:** Create a joint task force to monitor and fast-track JICA-funded projects, ensuring timely land acquisition, clearances, and coordination.
5. **Boost Skill Mobility and Language Training:** Expand TITP and SSW programs with Japanese language training centres in India to bridge employment and cultural gaps.
6. **Enhance People-to-People Connectivity:** Promote tourism, academic exchanges, scholarships, and cultural events to increase mutual familiarity and goodwill.

7. **Strengthen Multilateral Coordination:** Continue close collaboration in QUAD, G20, G4 (UNSC reforms), and Indo-Pacific Economic Framework (IPEF) for global and regional stability.
8. **Leverage Soft Power Diplomacy:** Harness shared Buddhist heritage, yoga, cuisine, cinema, and anime collaborations to deepen public engagement and cultural ties.

CONCLUSION

India and Japan share a robust and time-tested partnership rooted in mutual respect, shared democratic values, and a vision for a free, open, and rules-based Indo-Pacific. While the relationship has witnessed notable growth in defence, infrastructure, and economic cooperation, key areas like high-tech collaboration and people-to-people engagement remain underleveraged. The recent breakthrough in co-production of defence equipment signals a new era of strategic alignment. To unlock the full potential of this partnership, both nations must focus on removing trade barriers, fast-tracking joint projects, and deepening cultural and technological collaboration. With sustained political will and mutual commitment, India and Japan can emerge as pivotal pillars of peace, prosperity, and stability in the Indo-Pacific and beyond.

INDIA-UK FREE TRADE AGREEMENT: A NEW ERA OF ECONOMIC COOPERATION

WHY IN THE NEWS?

India and the United Kingdom have officially signed a Free Trade Agreement (FTA) after nearly three years of negotiations. While the FTA primarily focuses on trade and economic cooperation, it is expected to significantly benefit Indian students aspiring to study in the UK. The agreement aims to simplify visa procedures, enhance degree recognition, and expand post-study work opportunities. With over 150,000 Indian students currently in the UK, the FTA marks a major step toward improved accessibility and mobility in higher education and professional sectors.



WHAT IS A FREE TRADE AGREEMENT?

A Free Trade Agreement (FTA) is a treaty between two or more countries to facilitate trade and eliminate or reduce tariffs, quotas, and other trade barriers on goods and services exchanged between them. It aims to create a more open and competitive international marketplace by improving market access and reducing costs for exporters and importers. FTAs often include provisions on investment, intellectual property rights, and dispute resolution mechanisms. They are crucial instruments for boosting bilateral trade, attracting foreign investment, and enhancing economic cooperation between partner countries.

1. **Tariff Reduction or Elimination:** FTAs reduce or remove import/export duties on specified products.
2. **Market Access:** They provide businesses easier access to partner country markets.
3. **Rules of Origin:** FTAs define which goods qualify for tariff benefits based on where they are produced.
4. **Trade in Services:** Many FTAs also include provisions to promote cross-border services such as banking, insurance, education, etc.
5. **Investment Promotion:** FTAs often include clauses to protect and promote foreign investment.
6. **Dispute Resolution Mechanism:** They include processes to resolve trade disputes between partner countries.

OVERVIEW OF INDIA AND UK TIES

1. **Economic and Trade Relations:** Ongoing negotiations for a Free Trade Agreement (FTA) to boost trade and investment. Strong presence of Indian firms in the UK, especially in tech,

pharma, and financial services. UK investments in India's digital economy and fintech sector.

2. **Strategic and Technological Cooperation:** The UK-India Technology Security Initiative (TSI) focuses on AI, semiconductors, quantum computing, and cybersecurity. Collaboration on green energy, climate action, and sustainable finance. Joint efforts in research and innovation to stay competitive in emerging technologies.
3. **Defence and Security Partnerships:** Maritime security, counterterrorism, and intelligence-sharing form the core of defence cooperation. Joint military exercises and naval collaboration in the Indo-Pacific region. Potential for defence technology partnerships while respecting India's strategic autonomy.
4. **People-to-People Connections:** 1.6 million Indian-origin people in the UK contribute to business, healthcare, and politics. The Young Professionals Scheme allows easier movement of skilled workers. Indian students form the largest group of international students in the UK.
5. **Geopolitical Challenges and Opportunities:** Issues like Khalistani extremism and historical tensions occasionally create friction. Differences in foreign policy approaches, but shared strategic interests in global security. India's rising global influence and the UK's Indo-Pacific tilt create avenues for deeper collaboration.
6. **Future of India-UK Relations:** Review of Roadmap 2030 to assess progress and set new goals. Finalization of FTA to unlock economic potential. Strengthening technology, trade, and diplomatic engagement for a more robust partnership.

EVALUATIONS OF FREE TRADE AGREEMENTS

1. **Boost to Trade and Economic Growth:** FTAs significantly enhance bilateral trade by reducing tariffs and non-tariff barriers, thereby contributing to GDP growth and employment generation.
2. **Increased Consumer Choice and Lower Prices:** By encouraging the inflow of foreign goods and services, FTAs expand consumer options and can lead to more competitive pricing.
3. **Attraction of Foreign Investment:** Clear rules and investment protection provisions in FTAs promote investor confidence and help attract Foreign Direct Investment (FDI).
4. **Technology Transfer and Innovation:** Access to global markets through FTAs often encourages technology transfer, industry modernisation, and innovation in domestic sectors.
5. **Strain on Domestic Industries:** Small and vulnerable industries may struggle to compete with cheaper or more technologically advanced imports, leading to job losses or closures.
6. **Trade Imbalances and Dependency:** Unequal terms or competitiveness gaps can lead to trade deficits and over-dependence on partner countries for critical goods.
7. **Loss of Customs Revenue:** Reductions in import duties can negatively impact government revenue, especially in developing economies relying heavily on tariffs.
8. **Uneven Distribution of Benefits:** Gains from FTAs may not be equally shared across regions or socio-economic groups, risking inequality and public discontent if not addressed properly.

SIGNIFICANCE OF A FREE TRADE AGREEMENT

1. **Promotes Economic Growth:** FTAs stimulate economic activity by increasing exports, improving production efficiency, and attracting foreign investment.
2. **Enhances Market Access:** They open up new and larger markets for domestic producers, especially in sectors like manufacturing, agriculture, and services.
3. **Reduces Trade Barriers:** FTAs eliminate or lower tariffs, quotas, and other restrictions, making trade smoother, faster, and less costly.
4. **Boosts Competitiveness:** Exposure to global markets compels domestic industries to innovate, improve quality, and adopt better technologies.
5. **Improves Consumer Welfare:** Consumers benefit from a wider range of goods and services at lower prices due to increased competition and imports.

6. **Strengthens Bilateral and Strategic Ties:** FTAs are not just economic tools—they also deepen political, diplomatic, and strategic relations between partner countries.
7. **Facilitates Job Creation:** By expanding trade and investment, FTAs help generate employment in export-oriented and related sectors.
8. **Encourages Regulatory Cooperation:** They promote alignment of standards, certifications, and intellectual property rights, making cross-border business easier.

WAY FORWARD

1. **Timely Implementation of the FTA:** Both India and the UK must ensure the timely ratification and implementation of the FTA provisions to translate commitments into real economic gains.
2. **Focus on Education and Mobility:** While the agreement hints at better student and professional mobility, both nations should work towards concrete frameworks for mutual recognition of degrees, easier visa access, and improved post-study work pathways.
3. **Support for Vulnerable Sectors:** Governments should provide capacity-building support and transitional assistance to small and medium enterprises (SMEs) and vulnerable sectors likely to face competitive pressure due to tariff reductions.
4. **Maximising Services and Investment Potential:** With India's strength in services and UK's interest in investment, both sides must deepen regulatory cooperation and reduce barriers to cross-border trade in services and capital.
5. **Inclusive and Sustainable Trade Practices:** The FTA should be implemented with an emphasis on inclusive development, environmental sustainability, and labour standards to ensure balanced benefits.
6. **Leveraging Strategic Synergies:** Beyond trade, the FTA should be a platform to expand cooperation in areas like clean energy, cybersecurity, innovation, defence manufacturing, and digital public infrastructure.
7. **Strengthening India's Global Trade Network:** The India-UK FTA should serve as a stepping stone for India to conclude more high-standard FTAs, including the ongoing India-EU FTA negotiations, thus strengthening its role in global trade governance.
8. **Periodic Review and Evaluation:** Establish a joint mechanism to periodically assess the economic, social, and strategic impact of the FTA, ensuring it adapts to emerging challenges and remains mutually beneficial.

CONCLUSION

The India-UK Free Trade Agreement (FTA) represents a significant milestone in bilateral relations between the two nations, offering tremendous potential to enhance economic ties, foster educational and professional mobility, and boost strategic cooperation. With its broad-ranging provisions on trade, services, investment, and people-to-people exchanges, the FTA stands as a vital tool for both countries to secure mutual benefits and progress in various sectors, from technology and defense to education and climate action. As the FTA progresses, timely implementation, addressing vulnerable sectors, and promoting inclusive and sustainable trade practices will be critical in ensuring long-term success. The collaboration between India and the UK under the framework of the FTA will not only contribute to economic growth but also further strengthen their political and strategic relations, thereby positioning both nations to tackle global challenges together.

PRELIMS QUESTIONS

1. **With reference to India-Japan relations, consider the following statements:**
   1. India and Japan signed the Comprehensive Economic Partnership Agreement (CEPA) in 2014.
   2. The Acquisition and Cross-Servicing Agreement (ACSA) between the two countries facilitates mutual logistics support between their armed forces.

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3. Japan is a member of the Quad and collaborates with India on the Free and Open Indo-Pacific (FOIP) initiative.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

2. With reference to the India-UK Free Trade Agreement (FTA), consider the following statements:

1. The FTA is expected to significantly benefit Indian students by simplifying visa procedures and enhancing post-study work opportunities.
2. The FTA only focuses on trade and economic cooperation without any provisions related to education and technology.
3. The FTA aims to eliminate or reduce tariffs and quotas on goods and services exchanged between India and the UK.

How many of the above-given statements are correct?

(a) Only one (b) Only two
(c) All three (d) None

ANSWER-KEY

1. (b)	2. (b)

MAINS QUESTIONS

1. "India and Japan share a Special Strategic and Global Partnership shaped by shared democratic values and a common vision for the Indo-Pacific. However, there remain underutilised areas in this relationship."

(250 words, 15 marks)

2. Discuss the significance of the India-UK Free Trade Agreement (FTA) in strengthening bilateral relations.

(250 words, 15 marks)





INDIA'S DBT: BOOSTING WELFARE EFFICIENCY

WHY IN THE NEWS?

India's Direct Benefit Transfer (DBT) system has led to cumulative savings of ₹3.48 lakh crore by preventing leakages and improving targeting in welfare schemes, as per a new report by BlueKraft Digital Foundation. The study, covering data from 2009 to 2024, highlights that subsidy allocations have declined from 16% to 9% of total government expenditure post-DBT implementation, indicating enhanced efficiency in public spending. The report underlines the role of the JAM Trinity (Jan Dhan, Aadhaar, Mobile) in enabling seamless and transparent digital transfers. By moving away from paper-based disbursal methods, DBT ensures that subsidies and benefits reach the intended beneficiaries directly, curbing corruption, duplication, and middlemen. The findings reaffirm DBT's role in transforming India's social welfare landscape and promoting inclusive governance through technology.

WHAT IS DIRECT BENEFIT TRANSFER (DBT)?

Direct Benefit Transfer (DBT) is a governance reform initiative launched by the Government of India in January 2013 to directly transfer subsidies, pensions, and welfare benefits into the bank accounts of beneficiaries, thereby eliminating intermediaries, leakages, and corruption.

KEY FEATURES OF DBT:

1. **Digital Transfers:** Replaces paper-based disbursements with direct electronic transfers.
2. **Targeted Delivery:** Ensures only eligible beneficiaries receive government aid.
3. **JAM Trinity Backbone:** Jan Dhan accounts for financial inclusion, Aadhaar for biometric-based identification, Mobile for communication and verification

DIRECT BENEFIT TRANSFER (DBT) KEY ACHIEVEMENT

1. **Massive Fiscal Savings:** Cumulative savings of ₹3.48 lakh crore (2014–2024) by plugging leakages and eliminating fake/duplicate beneficiaries.
2. **Reduction in Subsidy Burden:** Subsidy allocation dropped from 16% to 9% of total government expenditure without reducing welfare coverage.
3. **Welfare Efficiency Index (WEI) Improvement:** WEI increased from 0.32 in 2014 to 0.91 in 2023, reflecting better targeting, efficiency, and inclusion.
4. **Expansion in Beneficiary Coverage:** The Number of beneficiaries surged from 11 crore to 176 crore (16-fold increase) across various schemes.
5. **Targeted and Transparent Transfers:** Implementation of the JAM Trinity (Jan Dhan, Aadhaar, Mobile) enabled accurate targeting and real-time digital payments.
6. **Sectoral Impact:** Major savings in high-leakage areas:
   PDS: ₹1.85 lakh crore,
   MGNREGS: ₹42,534 crore,
   PM-KISAN: ₹22,106 crore,
   Fertiliser Subsidy: ₹18,699 crore.
7. **Timely Payments and Reduced Corruption:** Example: 98% of MGNREGS wages disbursed on time; reduced role of middlemen and local-level corruption.
8. **Global Recognition:** DBT is now seen as a global model for digital welfare delivery and fiscal optimisation.

ISSUE IN DIRECT BENEFIT TRANSFER (DBT)

1. **Digital Divide:** Many beneficiaries, especially in remote and rural areas, lack access to smartphones, internet, or digital literacy to use DBT services effectively.

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2. **Aadhaar-Related Challenges:** Problems with Aadhaar authentication (biometric mismatches, inactive accounts) have led to the exclusion of genuine beneficiaries.
3. **Banking Infrastructure Gaps:** An Inadequate number of bank branches, ATMs, and Business Correspondents (BCs) in rural and tribal areas hinders last-mile delivery.
4. **Delay in Payments:** Technical glitches, data mismatches, or procedural delays often cause late disbursals, affecting schemes like MGNREGS or pensions.
5. **Exclusion Errors:** While targeting has improved, many eligible poor are still left out due to documentation issues or Aadhaar linking failures.
6. **Fraud and Misuse:** Though DBT reduces leakages, there have been cases of fraudulent Aadhaar seeding and unauthorised account access by middlemen.
7. **Grievance Redressal Mechanism:** Lack of effective and accessible complaint systems makes it hard for beneficiaries to resolve issues related to DBT.
8. **One-Size-Fits-All Model:** DBT doesn't always consider local socio-economic contexts, such as cash transfers in areas where in-kind benefits like food or fertiliser might be more appropriate.

WAY FORWARD

1. **Bridge the Digital Divide:** Expand digital infrastructure and ensure affordable internet access, especially in rural and tribal areas, to make DBT truly inclusive.
2. **Strengthen Aadhaar Infrastructure:** Improve Aadhaar authentication systems and provide support for people facing biometric mismatch issues; allow alternate ID-based access in critical cases.
3. **Enhance Banking Access:** Increase the reach of bank branches, mobile banking units, and Business Correspondents in underserved areas to facilitate smooth fund withdrawals.
4. **Robust Grievance Redressal System:** Set up user-friendly, multilingual grievance redress platforms with local support centres to resolve beneficiary complaints promptly.
5. **Data Accuracy and Integration:** Regularly update and cross-verify beneficiary databases with other government schemes to avoid duplication and exclusion errors.
6. **Context-Sensitive Transfers:** Use a mix of cash and in-kind support depending on regional needs and beneficiary preferences (e.g., food grains vs. cash in remote areas).
7. **Capacity Building and Awareness:** Conduct training programs and awareness drives for both officials and beneficiaries on how to use DBT services effectively and securely.
8. **Use of Emerging Technologies:** Integrate Artificial Intelligence, blockchain, and big data analytics to improve targeting, monitor leakages, and enable real-time audits.

CONCLUSION

The Direct Benefit Transfer (DBT) system has proven to be a transformative tool for India's welfare delivery, significantly enhancing the efficiency of public spending and expanding the reach of social benefits. Over the past decade, DBT has not only reduced fiscal leakages by ₹3.48 lakh crore but also ensured that subsidies are better targeted, with a marked decline in subsidy allocations as a percentage of total expenditure. The rise in the Welfare Efficiency Index (WEI) underscores the success of DBT in optimizing fiscal resources while broadening coverage for millions of beneficiaries. The sectoral savings, particularly in high-leakage programs like food subsidies, MGNREGS, and PM-KISAN, illustrate how the system's integration of Aadhaar and mobile-based transfers has addressed inefficiencies and curbed misuse.

CORE SECTOR POSTS 3.8% GROWTH IN MARCH AMID STABILISING ECONOMIC INDICATORS

WHY IN THE NEWS?

India's infrastructure output, represented by the Index of Eight Core Industries (ICI), recorded a growth of 3.8% in March 2025 on a year-on-year basis, according to provisional data released by the Ministry of Commerce and Industry. These eight core industries — cement, coal, crude oil, natural

gas, refinery products, fertilisers, steel, and electricity — together account for 40.27% of the weight of items included in the Index of Industrial Production (IIP). The growth in March was primarily driven by a strong performance in six sectors: cement production rose by 11.6%, fertilisers by 8.8%, steel by 7.1%, electricity by 6.2%, coal by 1.6%, and refinery products by 0.2%. However, the output of natural gas and crude oil declined by 12.7% and 1.9%, respectively. On a cumulative basis, the core sector registered a 4.4% growth rate during the financial year 2024–25 compared to the corresponding period of the previous year.



CONTRIBUTIONS OF THE 8 CORE SECTORS IN THE INDIAN ECONOMY

1. **Backbone of Industrial Output:** The Eight Core Industries—coal, crude oil, natural gas, refinery products, fertilisers, steel, cement, and electricity—constitute 40.27% of the Index of Industrial Production (IIP), making them a reliable indicator of overall industrial performance.
2. **Recent Growth Performance:** According to the Ministry of Commerce and Industry, core sector output grew by 3.8% in March 2025, showing a stable pace of economic activity across essential infrastructure sectors.
3. **Cement and Steel – Indicators of Infrastructure Development:** Cement and steel, key indicators of infrastructure growth, grew by 11.6% and 7.1% respectively in March 2025, signalling increased construction and development activity in both public and private sectors.
4. **Electricity – Powering Industries and Households:** Electricity generation, a crucial input across all sectors, increased by 6.2%, reflecting robust energy demand and improved power supply infrastructure.
5. **Fertilisers – Supporting Agricultural Growth:** Fertiliser production grew by 8.8%, aiding agricultural productivity and ensuring food security, especially critical as India remains largely agrarian.
6. **Coal – Key Energy Source:** Coal production, which fuels over 70% of India's power generation, grew by 1.6%, supporting the thermal power sector and base-load energy supply.
7. **Refinery Products – Boosting Energy Self-sufficiency:** Petroleum refinery production rose slightly by 0.2%, contributing to domestic energy availability and reducing reliance on imported finished fuels.
8. **Crude Oil and Natural Gas – Mixed Performance:** Crude oil and natural gas witnessed a decline of 1.9% and 12.7%, respectively, highlighting ongoing challenges in upstream energy exploration and production.
9. **Infrastructure Investment Driver:** These core sectors attract significant public and private investment, especially under initiatives like PM Gati Shakti, National Infrastructure Pipeline (NIP), and Make in India, driving long-term economic growth.
10. **Economic Indicator for Policy Planning:** The performance of the eight core sectors serves as a leading economic indicator for policymakers and investors, influencing fiscal planning, monetary policy, and industrial strategy.

GOVT. SCHEME TO PROMOTE THE CORE SECTOR IN INDIA

1. **PM Gati Shakti – National Master Plan for Multimodal Connectivity:** Launched in 2021, this scheme integrates infrastructure development across 16 ministries to boost connectivity, reduce logistics costs, and ensure coordinated growth in sectors like steel, cement, and electricity.
2. **National Infrastructure Pipeline (NIP):** With an investment target of over ₹100 lakh crore, NIP supports large-scale infrastructure projects across core sectors like energy, roads, ports,

and steel, enhancing industrial capacity and employment.

3. **Ujjwala and Saubhagya Schemes:** These schemes promote energy access by providing LPG connections to rural households and ensuring universal electricity access, thereby increasing demand and output in the refinery, natural gas, and electricity sectors.
4. **Production Linked Incentive (PLI) Scheme:** Applied to steel and other manufacturing sectors, PLI incentivises increased domestic production and global competitiveness, especially in speciality steel, thereby strengthening core industries.
5. **Revamped Distribution Sector Scheme (RDSS):** Aims to improve the operational efficiency and financial sustainability of power distribution companies, ultimately boosting electricity generation and transmission capacity in the country.
6. **Atmanirbhar Bharat Abhiyan:** Supports self-reliance in core sectors, including coal, fertilisers, steel, and crude oil, through reforms, investment incentives, and liberalised FDI policies to reduce dependence on imports.
7. **New National Steel Policy, 2017:** Targets a steel production capacity of 300 million tonnes by 2030, promoting investment, innovation, and sustainability in the steel sector, which is critical for infrastructure and manufacturing.
8. **National Electric Mobility Mission Plan (NEMMP) and FAME Scheme:** While focused on transport electrification, these indirectly stimulate growth in electricity generation, coal, and refinery sectors through increased energy demand and grid development.

ISSUES FACED BY THE CORE SECTOR IN INDIA

1. **Supply Chain Bottlenecks:** Inefficient logistics, delays in transportation, and poor multimodal connectivity often disrupt the smooth supply of raw materials and finished goods, especially in the cement, coal, and steel sectors.
2. **Dependence on Imports for Energy Needs:** Despite being energy-rich, India imports a large share of its crude oil and natural gas, exposing the sector to global price volatility and geopolitical risks.
3. **Infrastructure Deficiencies:** Inadequate storage facilities, outdated machinery, and poor last-mile connectivity hamper production and distribution, particularly in the electricity and fertiliser sectors.
4. **Environmental and Regulatory Challenges:** Stringent environmental clearances, land acquisition issues, and frequent changes in regulations often delay core sector projects, especially mining, power, and refinery ventures.
5. **Underperformance of DISCOMs:** Financially stressed power distribution companies (DISCOMs) fail to clear dues to electricity generators, impacting the liquidity and performance of the entire power sector value chain.
6. **Lack of Private Investment:** Many core sectors, such as steel and crude oil exploration suffer from limited private sector participation due to high capital intensity, policy uncertainty, and long gestation periods.
7. **Technological Gaps and Low R&D:** Several industries still rely on obsolete technologies, and there is a lack of innovation and research, which lowers efficiency and increases production costs.
8. **Skilled Manpower Shortage:** There is a mismatch in skill availability, particularly in sectors like petrochemicals, steel, and energy management, limiting productivity and modernisation efforts.
9. **Fluctuating Demand Cycles:** Many core industries are highly cyclical and sensitive to global and domestic demand variations, impacting stability and investment confidence.

WAY FORWARD

1. **Accelerate Infrastructure Development through Gati Shakti:** Strengthen implementation of the PM Gati Shakti Master Plan to improve logistics, reduce transport costs, and ensure time-bound execution of large-scale projects across core sectors.
2. **Boost Domestic Energy Production:** Encourage exploration and investment in crude oil and natural gas through liberalised FDI norms and improved ease of doing business, reducing dependence on imports.

3. **Modernise and Digitise Core Industries:** Promote adoption of Industry 4.0 technologies like automation, IoT, and AI to improve efficiency, reduce wastage, and increase competitiveness in sectors like steel, cement, and power.
4. **Focus on Renewable Integration:** Enhance renewable energy adoption and reduce over-reliance on coal by supporting solar, wind, and green hydrogen initiatives alongside existing power infrastructure.
5. **Revive Power Sector Reforms:** Improve the financial health of DISCOMs through schemes like RDSS, smart metering, and rational tariff structures to ensure a sustainable electricity ecosystem.
6. **Encourage Private Investment and PPPs:** Attract private capital through public-private partnerships, transparent bidding processes, and viability gap funding, especially in steel, fertilisers, and refinery infrastructure.
7. **Ensure Environmental and Regulatory Stability:** Streamline environmental clearance norms and create a single-window approval system to reduce project delays while ensuring ecological balance.
8. **Develop a Skilled Workforce:** Launch sector-specific skilling programs aligned with the National Skill Development Mission to meet the growing demands of high-tech and energy-intensive industries.

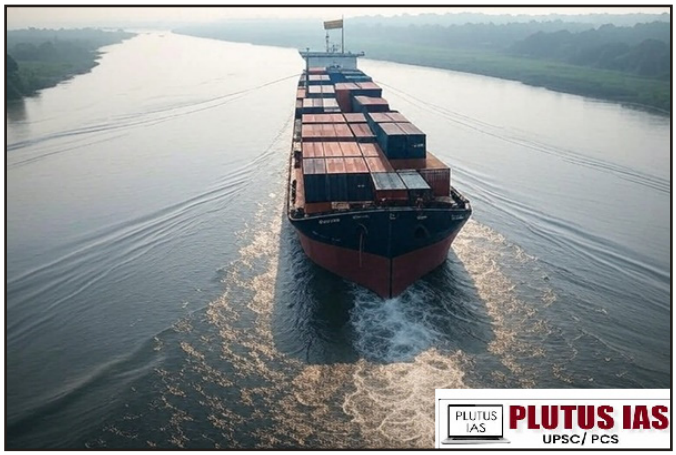
CONCLUSION

The Eight Core Sectors form the foundation of India's industrial and infrastructural framework, driving economic growth, employment, and national development. The recent 3.8% growth in March 2025 underscores their resilience amid global uncertainties and domestic challenges. Government initiatives such as PM Gati Shakti, the National Infrastructure Pipeline, and Production Linked Incentive schemes are significantly contributing to their expansion and modernisation. However, persistent issues like regulatory delays, energy import dependency, underperformance in certain segments, and technological lag need urgent redressal. Going forward, a holistic and coordinated strategy focusing on infrastructure upgrades, energy diversification, skilling, and investment promotion will be crucial. By modernising the core sectors and ensuring policy stability, India can not only strengthen its industrial base but also achieve sustainable and inclusive economic growth in the coming decades.

INLAND WATERWAYS AUTHORITY OF INDIA (IWAI): UNLOCKING INDIA'S MARITIME POTENTIAL

WHY IN THE NEWS?

The Inland Waterways Authority of India (IWAI) reported a record cargo movement of 145.5 million tonnes in the fiscal year 2024–25, marking a significant milestone in inland water transport.According to the Ministry of Ports, Shipping and Waterways, the number of national waterways increased from 5 to 111, and the operational length expanded from 2,716 km to 4,894 km.The government has also launched the Jalvahak Scheme, offering 35% operating cost incentives to promote cargo movement on major routes such as NW-1, NW-2, and NW-16. IWAI aims to increase the modal share of freight transport through waterways from 2% to 5%, targeting over 200 million metric tonnes by 2030 and 500 million metric tonnes by 2047 under the Maritime India Vision 2030 and Amrit Kaal Vision 2047.



WHAT IS IWAI AND THEIR MANDATE

Established on 27 October 1986, the IWAI functions under the Ministry of Ports, Shipping and Waterways. It acts as the nodal authority for the regulation, maintenance, and development of inland waterways across India. The institution plays a critical role in policy formulation, infrastructure development, and ensuring the environmental integrity of waterways.

Mandate Area	Description
Development of National Waterways	✧ IWAI identifies strategic rivers and canals that can be developed into National Waterways (NWs) based on commercial viability and navigational potential. Prioritizing these waterways ensures better allocation of resources and quicker results.
Infrastructure Development	✧ IWAI constructs and upgrades terminals, river ports, jetties, and navigational locks. It focuses on creating multi-modal hubs that link waterways seamlessly with rail and road networks.
Regulatory Oversight	✧ It frames operational and navigational rules for inland shipping, ensuring safety, standardization, and efficient movement of goods and passengers. It also issues guidelines for vessel licensing and operation.
Navigational Aids	✧ IWAI installs modern navigation aids like buoys, marker posts, river lights, and uses River Information Systems (RIS) to monitor vessel movement, enhancing the safety and reliability of IWT.
Fleet Development	✧ It promotes the modernization of the vessel fleet by encouraging lighter, faster, and fuel-efficient barge designs. It also supports shipbuilding yards through policy incentives.
Environmental Sustainability	✧ Environmental Impact Assessments (EIA) are mandatory for new projects. IWAI ensures that dredging activities, terminal construction, and vessel operations are conducted sustainably without harming riverine ecosystems.
Promotion of IWT	✧ Through campaigns, roadshows, workshops, and trade fairs, IWAI raises awareness among industries, logistics providers, and the public about the benefits of using inland waterways for transport.
Skill Development	✧ Realizing the need for skilled human resources, IWAI promotes education and training programs for river pilots, engineers, logistics handlers, and safety personnel, often collaborating with maritime institutes.

INLAND WATERWAYS IN INDIA: STATUS, DATA & FACTS

India is blessed with a labyrinth of rivers, creeks, canals, and backwaters. The country has a navigable length of about 14,500 km, of which approximately 5,200 km is suitable for cargo transport. Despite this, the share of IWT in India's modal transport mix remains low.

1. **111 National Waterways (NWs):** With the passing of the National Waterways Act, 2016, 111 waterways were declared as National Waterways, creating a statutory framework for their development. Of these, about 20–25 NWs have been prioritized based on techno-economic viability studies.
2. **Major National Waterways:** NW-1 (Ganga-Bhagirathi-Hooghly river system) stretches 1,620 km, NW-2 (Brahmaputra) covers 891 km, and NW-3 (West Coast Canal) spans 205 km in Kerala. These three are the most commercially developed waterways with active cargo and passenger services.
3. **Cargo Movement Trends:** Cargo volumes moved through IWT rose from 3.1 million tonnes in 2008–09 to over 108.8 MTPA in 2022–23, reflecting the impact of targeted government interventions. Major commodities moved include coal, fly ash, food grains, cement, and petroleum products.
4. **Key Waterway Projects:** Flagship initiatives like the Jal Marg Vikas Project (JMVP) aim to provide year-round navigation on NW-1 with multimodal terminals, navigational locks, and barge construction programs. The Eastern Waterways Grid is another ambitious vision to connect Northeast India via water routes.
5. **Multimodal Terminals:** State-of-the-art multimodal terminals at Varanasi, Sahibganj, Haldia, and Jogighopa offer cargo handling, warehous-

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ing, container storage, customs clearance, and intermodal connectivity, improving cargo efficiency significantly.

6. **Passenger Ferry Services:** IWAI has launched ferry services connecting urban hubs across rivers, reducing travel times drastically. Ro-Pax and Ro-Ro ferries have also opened new possibilities for vehicle transport across rivers, avoiding long circuitous road journeys.
7. **Technology in IWT:** Digital innovations like RIS ensure real-time monitoring, hazard warnings, and efficient vessel scheduling. Future plans include the use of AI-based predictive models to improve navigation and traffic management. 8.International Cooperation: Inland connectivity with Bangladesh under the Protocol on Inland Water Transit and Trade (PIWTT) enables Indian vessels to access Bangladeshi ports, drastically reducing distance for Northeast-bound cargo by 800–1,200 km.

ROLE OF INLAND WATERWAYS IN BOOSTING INDIA'S ECONOMY

1. **Cost-Effective Transport:** Waterways significantly lower logistics costs, crucial for making Indian products globally competitive. Studies show that an increased IWT share can reduce overall supply chain costs by up to 20%, a major boost to trade competitiveness.
2. **Fuel Efficiency:** Barges carry large quantities of goods with less fuel, leading to savings in national energy expenditure. A typical 2,000-ton barge can replace 100 trucks, thus reducing diesel consumption substantially.
3. **Reduced Congestion:** Diverting cargo to waterways relieves pressure on national highways and congested urban centers. This not only shortens travel times but also improves the lifespan of critical road infrastructure.
4. **Green Logistics:** Inland shipping emits much lower greenhouse gases per ton-km transported. If India increases IWT share from the current 2% to even 5%, it can lead to a massive reduction in annual carbon emissions.
5. **Employment Generation:** Inland ports, terminals, cargo handling facilities, and ancillary services generate both direct and indirect employment. Small business ecosystems around river ports stimulate rural economies and curb urban migration.
6. **Better Access for NE India:** Inland routes through Bangladesh, utilizing the Brahmaputra and Meghna rivers, offer cost-effective access to the Northeast. This not only strengthens economic ties but also enhances strategic connectivity to border states.
7. **Boost to Tourism and Heritage:** Developing river cruises and heritage routes can create a billion-dollar river tourism economy. Cultural and religious tourism linked with waterways (like Varanasi-Kolkata) holds immense potential.
8. **Support for Bulk Cargo Industries:** Cement, fertiliser, coal, food grain, and petroleum sectors benefit significantly from cheaper water transport. Backhaul cargo opportunities further enhance the economics of IWT, creating a virtuous trade cycle.

CHALLENGES IN TAPPING THE INLAND WATERWAYS POTENTIAL

1. **Limited Water Depth:** Many rivers suffer from insufficient draft during dry seasons. Dredging is costly and environmentally sensitive, and in some cases, even frequent dredging cannot guarantee sustainable depths.
2. **Lack of Cargo Aggregation:** The scattered nature of industries along rivers makes it difficult to consolidate cargo for efficient barge operation. Unlike coastal shipping, inland shipping needs robust aggregation hubs for economies of scale.
3. **Infrastructure Gaps:** Key missing infrastructure includes adequate loading/unloading facilities, storage spaces, and container handling equipment. Without end-to-end seamlessness, shippers prefer road transport.
4. **Slow Vessel Movement:** River navigation is slower due to curves, bridges, fishing activities, and unpredictable sedimentation. The lack of night navigation facilities further restricts operational windows.
5. **Environmental and Social Concerns:** Projects involving river deepening and bank strengthening often trigger resistance from environmental groups. Ensuring ecological

safeguards is necessary to maintain a social license to operate.

6. **Low Private Sector Participation:** Although government projects exist, private investments in vessels, terminals, and logistics services are slow. Concerns around regulatory stability and guaranteed returns deter many investors.
7. **Inter-agency Coordination:** Inland waterways often overlap jurisdictions of irrigation, fisheries, shipping, and environment departments. Fragmented governance slows decision-making and hampers project execution.
8. **Lack of Awareness and Promotion:** Many logistics providers and industries are unaware of how to use waterways for cargo movement. Active marketing campaigns, success stories, and financial incentives are necessary to change mindsets.

RECOMMENDATIONS

1. **Assured Minimum Navigable Depth:** Government must focus on sustainable and need-based dredging using advanced technologies. Predictive hydrological models and low-impact dredging can balance navigation with environmental concerns.
2. **Strengthen Infrastructure:** Development of multimodal logistics parks near waterways should be prioritized. Port-led industrialization models like Sagarmala should be extended to inland river ports as well.
3. **Digital Ecosystem:** A fully integrated digital infrastructure connecting cargo owners, vessel operators, and terminal managers will increase operational efficiency. Blockchain-based cargo tracking could be the next frontier.
4. **Incentivize Modal Shift:** Financial incentives, concessional freight rates, and policy nudges should be provided to cargo owners willing to shift part of their logistics to waterways. Green certifications for industries using IWT can also be promoted.
5. **Public-Private Partnerships (PPP):** Structured, long-term PPP models with fair risk-sharing mechanisms can attract private capital into the sector. Clear timelines and dispute resolution mechanisms must be included.
6. **Skill Development and Capacity Building:** Specialised courses on inland navigation, river port management, and river vessel engineering should be introduced in maritime universities. This will create a pool of trained professionals for the sector.
7. **Integrated Policy Approach:** An apex National Inland Waterways Coordination Authority can synchronize efforts among various ministries, departments, and states. This body can also guide strategic investments and funding allocation.
8. **International Collaboration:** India should forge greater partnerships with European Union, ASEAN, and Bangladesh on inland shipping technology, regulatory best practices, and vessel design innovations.

CONCLUSION

The inland waterways network represents a hidden economic and environmental treasure for India. With sustained investment, regulatory clarity, and private sector engagement, IWAI can help unlock this potential. Inland Waterways offer a future where goods move faster, cheaper, and greener — transforming India into a global trade leader while preserving its environment. It is time to sail ahead and harness the true power of India's rivers successful development of inland waterways will align India with its global climate commitments and promote inclusive growth across remote regions. With visionary planning and collective action, India's rivers can once again become the lifelines of national prosperity and connectivity.

ENHANCING AGRICULTURAL EXPORTS: APEDA CONDUCTS A CAPACITY-BUILDING PROGRAMME

WHY IN THE NEWS?

The Agricultural and Processed Food Products Export Development Authority (APEDA), in collaboration with the Government of Odisha, organised a Workshop-cum-Capacity Building Programme on April 25, 2025, at Dr. M.S. Swaminathan Hall, OUAT, Bhubaneswar, to promote agricultural exports from the state. The event featured over 10 stalls set up

by Farmer Producer Organisations (FPOs), women agripreneurs, government departments, and exporters, showcasing Odisha's unique GI-tagged and indigenous agri-products such as Koraput Kalajeera Rice, Kandhamal Haldi, Koraput Coffee, Nayagarh Kanteimundi Brinjal, Kendrapada Rasabali, and Salepur Rasagolla. Addressing the gathering, Deputy Chief Minister and Agriculture Minister Shri Kanak Bardhan Singh Deo highlighted the state's efforts to promote organic and GI products in international markets and appreciated APEDA's collaboration.



WHAT IS APEDA?

The Agricultural and Processed Food Products Export Development Authority (APEDA) is a statutory body established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament in December 1985. The Act (2 of 1986) came into effect from 13th February, 1986 by a notification issued in the Gazette of India: Extraordinary: Part-II [Sec. 3(ii): 13.2.1986). The Authority replaced the Processed Food Export Promotion Council (PFEPC).

FUNCTIONS OF APEDA

1. **Promotion of Agri-Exports:** Promotes the export of scheduled agricultural and processed food products like fruits, vegetables, meat, dairy, cereals, pickles, honey, floriculture products, herbal plants, and beverages.
2. **Development of Export-Oriented Industries:** Supports infrastructure development and modernisation of agri-processing units through financial assistance, surveys, feasibility studies, and subsidy schemes.
3. **Registration of Exporters:** Registers persons or companies as exporters of scheduled products to regulate and promote formal exports.
4. **Standardisation and Quality Control:** Fixes standards and specifications for scheduled products to ensure quality exports and to meet international standards.
5. **Inspection and Certification:** Conducts inspection of meat and meat products at slaughterhouses, processing units, and storage areas to ensure hygiene, safety, and quality.
6. **Packaging and Branding Promotion:** Encourages development of improved packaging for export items to enhance shelf life, appeal, and international competitiveness.
7. **Training and Capacity Building:** Organises workshops, seminars, and training sessions for farmers, exporters, and agripreneurs to build export readiness and knowledge.
8. **Market Intelligence and Export Promotion:** Provides exporters with market intelligence, trends, and promotional support through international fairs, buyer-seller meets, and digital outreach.

APEDA ROLE ANALYSIS

1. **Export Promotion:** Promotes exports of agri and processed food products, focusing on diversification and value addition, especially GI-tagged and organic products.
2. **Policy Implementation:** Implements government schemes under the Ministry of Commerce and aligns with the Agriculture Export Policy (AEP).
3. **Market Access:** Organises trade fairs, buyer-seller meets, and provides market intelligence to help exporters access global markets.
4. **Capacity Building:** Trains farmers, FPOs, and exporters on quality standards, certifications, and export procedures.
5. **Organic Promotion:** Implements the National Programme for Organic Production (NPOP) for organic certification and export support.
6. **Infrastructure Development:** Supports cold chains, pack houses, and labs to boost export-ready infrastructure.

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7. **Regulatory Functions:** Registers exporters, sets quality standards, and inspects meat and dairy products for export.
8. **Partnerships:** Collaborates with state governments, SFAC, ICAR, and others for coordinated export development.

ISSUES IN THE AGRICULTURAL EXPORT

1. **Inadequate Infrastructure Challenge:** Poor logistics, lack of cold storage, and insufficient transport networks impact export efficiency. India ranks 44th in the Logistics Performance Index (LPI) 2023, highlighting significant infrastructure bottlenecks.
2. **High Export Costs:** Exporters face high freight costs, customs duties, and compliance expenses, making Indian agricultural products less competitive. According to the Indian Council for Research on International Economic Relations (ICRIER), India's logistics cost is approximately 13-15% of GDP, compared to 8-10% in developed countries.
3. **Quality Control and Standards Compliance:** Meeting international quality standards (e.g., GAP, HACCP) for exports is difficult due to varying global requirements. According to the APEDA, Indian exports of fresh produce like fruits and vegetables face significant rejections due to quality issues, with over 10% of shipments rejected by the European Union in some cases.
4. **Limited Market Access:** Trade barriers, tariffs, and non-tariff barriers like sanitary and phytosanitary (SPS) restrictions limit access to key international markets. According to the World Trade Organisation (WTO), India faces significant SPS barriers, with 15% of agricultural exports being impacted by such measures.
5. **Dependence on Traditional Markets:** Indian agricultural exports are heavily dependent on a few markets, primarily the Middle East and Southeast Asia, limiting diversification. In 2020-21, nearly 40% of India's agricultural exports were directed towards the Middle East and Southeast Asia.
6. **Fluctuating Crop Yields:** Indian agriculture faces uncertainties due to monsoon dependence, climate change, and pest outbreaks, affecting export consistency. The Ministry of Agriculture reported a 15% decrease in rice exports in 2020-21 due to poor yield caused by erratic monsoon patterns.
7. **Lack of Value Addition:** Most agricultural exports from India are raw, limiting revenue potential compared to processed goods. India exports over 80% of its agricultural products as raw commodities, while developed countries export more than 70% as processed goods.
8. **Regulatory Hurdles and Red Tape:** Complicated export regulations, delays in certifications, and multiple approvals increase the time and cost for exporters. A report by APEDA found that 25-30% of export delays are caused by regulatory bottlenecks, such as lengthy certification processes for organic products.

WAYS TO PROMOTE AGRICULTURAL EXPORTS

1. **Strengthen Export Infrastructure:** Invest in cold chains, pack houses, testing labs, and logistics hubs near farms. Establish dedicated Agri Export Zones (AEZs) and link them to ports.
2. **Promote Value Addition:** Encourage food processing industries to convert raw produce into high-value products. Provide subsidies and incentives under schemes like PMKSY (Pradhan Mantri Kisan SAMPADA Yojana).
3. **Facilitate Organic and GI Product Exports:** Promote GI-tagged and organic-certified products through branding and international exhibitions. Strengthen certification and traceability systems under NPOP.
4. **Diversify Export Markets:** Reduce over-reliance on a few regions by exploring Africa, Latin America, and East Asia. Use trade agreements (e.g., CEPA, FTA) to gain preferential access.
5. **Simplify Export Procedures:** Digitise certification, customs clearances, and inspection processes. Create a single-window export clearance system for agri-products.
6. **Capacity Building for Farmers and FPOs:** Train farmers and FPOs in quality standards, post-harvest handling, and global market requirements. Link FPOs with export houses and aggregators.

7. **Enhance Market Intelligence and Promotion:** Provide real-time data on global demand, prices, and regulations. Organise buyer-seller meets, virtual trade fairs, and reverse buyer missions.
8. **Policy and Financial Support:** Offer export incentives, credit guarantees, and transport subsidies. Implement the Agriculture Export Policy (AEP) effectively at the state level.

CONCLUSION

India's agricultural export potential is immense, owing to its diverse agro-climatic zones, rich biodiversity, and a wide array of GI-tagged and organic products. Institutions like APEDA play a pivotal role in promoting these exports through policy support, infrastructure development, and stakeholder engagement. However, challenges such as inadequate infrastructure, high logistics costs, quality compliance issues, and limited value addition need urgent redressal. Strengthening cold chains, streamlining regulations, diversifying markets, and building farmer capacity are key to making Indian agricultural exports globally competitive. With coordinated efforts between the Centre, States, and organisations like APEDA, India can realise its vision of becoming a global hub for agricultural and processed food exports.

WAVES SUMMIT AND THE ORANGE ECONOMY IN INDIA

WHY IN THE NEWS?

Prime Minister Narendra Modi inaugurated the World Audio Visual and Entertainment Summit (WAVES) in Mumbai, marking a major step in India's entertainment and content creation industries.



The summit, a first in India, brings together stakeholders from sectors like broadcasting, infotainment, AVGC-XR, films, and digital media. Modi highlighted the role of Indian content creators in driving economic growth and promised future initiatives, such as the WAVES awards. His visit to Maharashtra, Kerala, and Andhra Pradesh further emphasizes the government's focus on fostering both creative industries and large-scale infrastructure projects for holistic development.

WHAT IS THE WAVES SUMMIT?

The WAVES Summit is an international forum hosted by India to recognize and empower the cultural and creative economy under the broader G20 umbrella. The name WAVES is an acronym that encapsulates Women, Audiovisual, Visuals, Entertainment, and Skills—areas seen as pillars of the Orange Economy. It promotes cultural diversity, artistic freedom, gender inclusivity, and skill development in creative industries. The summit also serves as a platform for policy dialogue, investment opportunities, and global cultural exchange. The 2023 edition saw participation from international delegates, stakeholders from film, music, gaming, and design industries, as well as young creators. Through WAVES, India seeks to institutionalize culture as an economic driver, particularly focusing on empowering women and youth through entrepreneurship and education.

ORANGE ECONOMY IN INDIA

The Orange Economy refers to the sector of the economy based on creativity, culture, and innovation. It includes industries such as music, dance, theatre, crafts, design, film, media, publishing, gaming, architecture, and visual arts. This term was popularized by Inter-American Development Bank economists and has now been adopted globally to represent the creative sector. In India's context, the Orange Economy represents the confluence of its ancient heritage and modern innovation. It emphasizes both traditional artisanship—such as Madhubani paintings and handlooms—and emerging digital arts like animation, AR/VR content, and music streaming platforms. It is inherently

inclusive, with vast potential to provide jobs and entrepreneurial opportunities in rural as well as urban areas. This economy thrives on intellectual property, cultural identity, and storytelling—core strengths of India's diverse society.

DATA AND SCALE OF ORANGE ECONOMY IN INDIA

According to industry estimates, India's creative economy is growing at over 12% annually, contributing nearly $150 billion to GDP and employing over 8 million people. The film industry alone is one of the largest in the world, producing more than 2,000 films annually. Similarly, the animation and VFX industry crossed ₹10,000 crore in 2022 and continues to expand. India is home to over 3,000 craft forms and hosts one of the world's largest design and textile clusters. The digital content creation sector—including YouTube creators and independent musicians—is seeing exponential growth. Yet, despite its size and impact, the creative economy remains largely informal, and many segments are underrepresented in national economic planning.

IMPORTANCE OF WAVES SUMMIT TO PROMOTE THE ORANGE ECONOMY

The WAVES Summit is vital to elevating the Orange Economy from a peripheral to a central pillar of development policy. By focusing on areas like skills training, digital platforms, and international collaboration, the summit provides structural support to creative entrepreneurs and strengthens cultural infrastructure. It acts as a launchpad for government and private sector partnerships, policy dialogues, and cross-cultural collaborations. It also helps spotlight underrepresented groups such as tribal artisans, women creators, and rural designers, giving them both recognition and a platform to scale their work globally. The summit showcases India's creative potential to the world, helping attract global investment, increase exports of cultural products, and create jobs through cultural tourism and digital platforms.

KEY HIGHLIGHTS OF THE WAVES SUMMIT:

1. Hosted during India's G20 presidency in 2023 under the Culture Working Group, themed around "Culture Unites All."
2. Over 800 delegates participated, including policymakers, artists, industry leaders, and youth creators.
3. Focus areas included digital empowerment of artisans, sustainability in cultural production, and gender inclusion in creative industries.
4. Live performances, exhibitions, and panel discussions featured across disciplines—film, music, crafts, digital art, and animation.
5. Global participation from 29+ countries helped promote intercultural dialogue and shared strategies for creative sector growth.
6. Women-led enterprises and tribal art forms were specially highlighted through curated exhibitions and storytelling sessions. The summit's multi-stakeholder approach ensures that creativity is treated not only as heritage but also as a strategic economic asset that fuels innovation, employment, and soft power.

KEY GOVERNMENT INITIATIVES TO PROMOTE ORANGE ECONOMY

1. **Scheme for Promotion of Traditional Arts and Crafts (SPTAC):** This scheme supports skill development, marketing assistance, and digital outreach for traditional artisans across India. Over 1.5 lakh artisans have benefitted from skill training and capacity-building workshops under various SPTAC-linked initiatives. Example: In Odisha and Madhya Pradesh, SPTAC-supported workshops have helped revive endangered tribal art forms like Saura and Gond painting, with e-commerce onboarding through platforms like GeM and Tribes India.
2. **MSE-CDP (Micro & Small Enterprises Cluster Development Programme) and SFURTI (Scheme of Fund for Regeneration of Traditional Industries):** These schemes provide financial support to create common facility centres and promote creative clusters in crafts, handlooms, coir, khadi, and other traditional sectors. Under SFURTI alone, 450+ clusters have been approved, directly benefiting over 2 lakh artisans and weavers as of 2023. Example:

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The Channapatna Toy Cluster in Karnataka and the Banarasi Silk Cluster in Uttar Pradesh have received SFURTI support to modernize tools and boost exports.

3. **National Digital Library & Design Innovation Centres (DICs):** These initiatives aim to integrate digital learning with creative arts, promoting access to cultural knowledge and fostering innovation in design. The National Digital Library hosts over 1 crore digital resources, including music, art history, and multimedia archives for students and researchers. Example: DICs at institutes like IIT Guwahati and NID Ahmedabad run projects on sustainable design, crafts-tech integration, and rural innovation labs.
4. **Prasar Bharati and Doordarshan Programs:** The national broadcaster promotes regional folk, tribal, and classical art forms through dedicated programming slots and digital channels. DD Bharati and All India Radio air over 100 hours/week of traditional music, dance, and storytelling content, reaching audiences in 23 languages. Example: Shows like Sur Sagar, Desh Ki Dharti, and Lok Rang have brought lesser-known artists from Assam, Nagaland, and Chhattisgarh to the national stage.
5. **Startup India & Atmanirbhar Bharat:** These flagship schemes offer financial support, mentorship, and incubation for startups in fields like digital art, music-tech, content creation, and cultural tourism. As of 2024, over 850+ creative economy startups are registered under Startup India, including platforms like Stage.in (regional OTT) and Mojarto (online art marketplace). Example: Startups using AI in music composition or regional language dubbing have received support under the Atmanirbhar Innovation Challenge.
6. **Creative Economy Task Force under G20:** Constituted during India's G20 Presidency, this task force aims to mainstream policy coordination and long-term investment in the creative sector. It proposed the setting up of a National Creative Economy Council, interlinking ministries of culture, commerce, education, and skill development. Example: Its action plan emphasizes fiscal incentives for cultural exports and integrating creative entrepreneurship in school curriculums by 2030.

CHALLENGES IN PROMOTING THE ORANGE ECONOMY

1. **Lack of Formal Recognition:** Many creative professionals, such as folk musicians, street performers, tattoo artists, and tribal painters, operate in the informal economy, lacking official certifications or registrations. This leads to exclusion from government schemes, credit benefits, or welfare measures like pensions or insurance.For example, UNESCO data indicates that over 60% of creative professionals in South Asia remain informally employed, leading to invisibility in policymaking.
2. **Skilling and Education Gap:** Despite the vast creative heritage, formal education in arts, crafts, and design remains limited and urban-centric. Rural and tribal youth often lack access to institutions like NID, FTII, or Srishti School of Design, widening the opportunity gap. According to a FICCI report (2023), only 8–10% of students in rural India are exposed to structured art and culture education in schools.
3. **Inadequate Access to Finance:** Creative entrepreneurs often cannot provide traditional collateral or steady revenue histories, making banks reluctant to offer credit. Less than 20% of artisan-led enterprises have accessed formal credit, according to the MSME Ministry (2022). NBFCs and cooperative banks rarely have products tailored to sectors like folk music, storytelling apps, or rural fashion labels.
4. **Digital Divide:** Many artists, especially in remote regions, lack access to affordable internet, smartphones, or e-commerce knowledge. According to the NSSO 2019 survey, only 14% of rural households had access to the internet, creating severe market entry barriers. This prevents artisans from uploading their products to portals like Amazon Karigar, or leveraging YouTube/Instagram for global outreach.
5. **IP Protection Issues:** India faces challenges in protecting intangible cultural heritage and original creative work due to weak IP enforcement mechanisms. Traditional knowledge and folk designs are often copied by larger companies without adequate attribution or royalty-sharing. For example, there have been cases of Madhubani paintings and Kanjeevaram designs being used without permission on foreign products.

6. **Low Global Visibility:** Although India boasts a deep pool of cultural assets, it has a small share in the global creative goods market, dominated by countries like South Korea and the UK. UNESCO estimates India's share of global creative exports to be less than 1%, far behind its potential. Limited participation in international festivals, fairs, and digital showcases has restricted the international reach of Indian creators.

WAY FORWARD

1. **Institutionalize the Orange Economy:** Include creative sectors in national GDP calculations, economic surveys, and employment data frameworks like PLFS and NSSO.This will improve policy targeting and resource allocation. For example, Mexico and Colombia officially track creative economy contributions in national accounts, aiding structured growth planning.
2. **Develop Skill Ecosystems:** Establish more design and creative arts institutes in Tier-2 and Tier-3 cities, and integrate arts education into school curricula. Launch partnerships with platforms like SWAYAM, Coursera, and Khan Academy for creative MOOCs, and promote apprenticeships with master artisans.
3. **Facilitate Access to Credit and Insurance:** Develop creative economy-specific credit instruments such as revenue-based financing, micro-loans, and IP-backed loans. Institutions like SIDBI and NABARD can create specialized loan windows, while insurance models for irregular income earners in arts can be piloted.
4. **Expand Market Access:** Strengthen linkages to domestic e-commerce (like ONDC, Amazon Karigar, Flipkart Samarth) and international digital platforms. Organize virtual expos, digital craft bazaars, and pop-up events in tourism hotspots to increase discoverability and sales.
5. **Boost Global Cultural Diplomacy:** Institutionalize cultural components in international trade delegations, embassies, and bilateral events (e.g., India@75 diaspora showcases). Promote Indian design, dance, cinema, and digital art in platforms like Venice Biennale, Cannes, and Expo Dubai to build India's soft power.
6. **Strengthen IP and Cultural Rights:** Launch awareness drives and toolkits in regional languages about copyrights, GIs, and design rights tailored to artisans and creators. Establish legal aid clinics and mobile IPR support units, especially in areas like Odisha, Kutch, and Northeast India, to protect traditional knowledge and artistic originality.

CONCLUSION

The WAVES Summit marks a bold step toward mainstreaming India's creative sector as a driver of economic growth, cultural preservation, and social inclusion. With the right policy support, institutional frameworks, and global promotion, the Orange Economy can become a cornerstone of India's journey toward a knowledge-driven and inclusive future. It offers not just jobs and innovation but also a reaffirmation of India's civilizational strengths in a rapidly evolving world. As global demand for cultural products, experiences, and digital content rises, India stands well-positioned to lead through its rich diversity and demographic dividend. Sustained investment and visibility in the creative economy will be key to achieving both economic resilience and cultural leadership in the 21st century.

BUFFER STOCK IN INDIA: A STRATEGIC NECESSITY IN FOOD SECURITY

WHY IN THE NEWS?

The Government of India has approved the engagement of a professional pulses buffer management entity to streamline the handling of national pulse reserves. As of February 1, 2017, nearly 9.71 lakh tonnes of pulses were procured through domestic and import channels. Although no single state requested one lakh tonnes, around 50,958 tonnes were allocated based on aggregate state demands. This move comes amid efforts to stabilize prices and ensure timely availability. With adequate storage capacity via the Central Warehousing Corporation (CWC), the initiative reflects the Centre's push for a responsive, data-driven buffer stock policy.

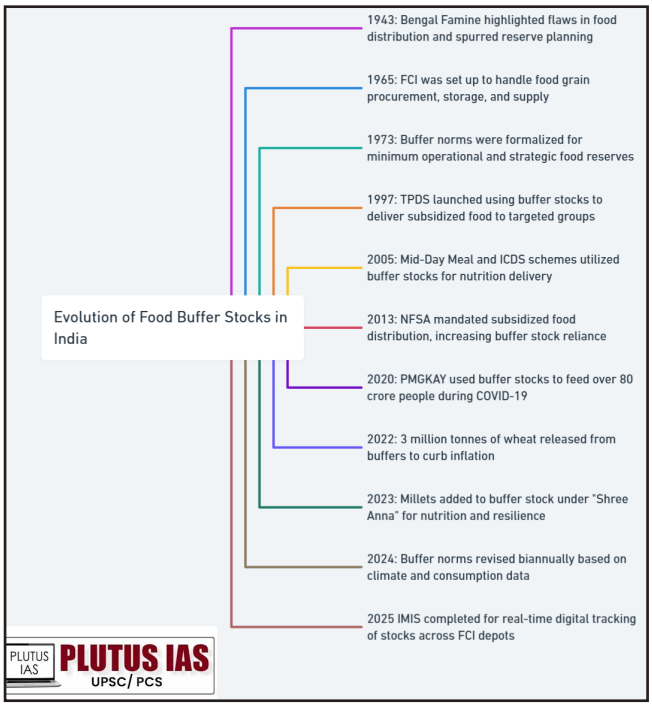


WHAT IS BUFFER STOCK?

Buffer stock refers to a reserve of essential commodities, primarily food grains like wheat and rice, maintained by the government to ensure food security, stabilize prices, and manage emergencies such as crop failures or natural disasters. These stocks are procured at Minimum Support Prices (MSP) and managed by agencies like the Food Corporation of India (FCI).

EVOLUTION OF BUFFER STOCK IN INDIA

The concept of buffer stocking in India emerged in the aftermath of the 1960s food crisis, particularly during the Green Revolution. The Food Corporation of India (established in 1965) was mandated to procure, store, and distribute food grains under the Public Distribution System (PDS). Over time, buffer norms were established, and stock levels were institutionalized to cater to consumption needs and emergency requirements. The National Food Security Act (NFSA), 2013 further formalized the role of buffer stocks in ensuring subsidized food distribution to over 800 million people.



WHY WE NEED BUFFER STOCK

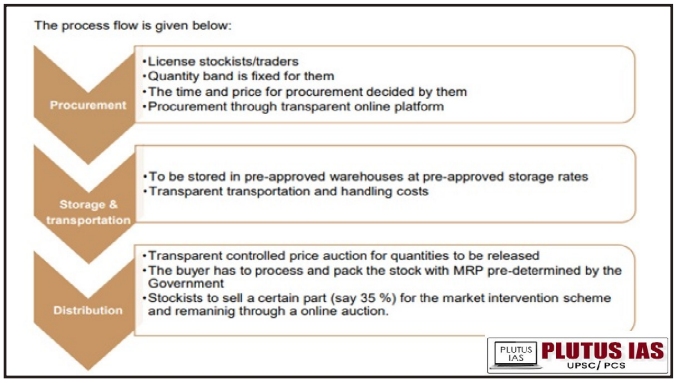
1. **Price Stabilization:** Buffer stocks play a critical role in stabilizing prices by absorbing market shocks. For instance, in 2022, FCI released 3 million tonnes of wheat from central pools to check rising retail prices.
2. **Ensuring Food Security:** During crises like COVID-19, over 800 million people received free food grains under the PM Garib Kalyan Anna Yojana (PMGKAY), highlighting the importance of buffer stock in food access.
3. **Natural Disaster Response:** In flood-hit Assam (2022), emergency food grain releases from buffer stock ensured uninterrupted PDS supply to over 5 lakh affected families.
4. **Public Distribution System (PDS) Backbone:** Buffer stock ensures monthly distribution of 5 kg food grains per person to NFSA beneficiaries, covering 75% rural and 50% urban populations.
5. **Strategic Reserve Against Global Disruptions:** In 2023, amidst global wheat export bans, India's domestic buffer helped contain food inflation without relying on imports.
6. **Support to Farmers through MSP:** Procurement at MSP ensures income support to farmers. In 2022-23, FCI procured over 105 million tonnes of food grains benefiting over 1.5 crore farmers.
7. **Nutrition and Crop Diversification Push:** Including pulses and millets under buffer norms, such as in the 'Shree Anna' millet initiative (GoI, 2023), helps improve diet quality and sustainability.

WHAT ARE THE ISSUES WITH BUFFER STOCK

1. **Storage Inefficiencies:** A significant portion of buffer stocks is stored in substandard warehouses, leading to spoilage due to moisture, rodents, and lack of ventilation. According to a 2022 CAG report, FCI lost over 2.5 lakh tonnes of food grains to wastage over five years.
2. **Mounting Fiscal Burden:** The cost of procuring, transporting, and storing food grains under MSP often surpasses budgetary allocations. The food subsidy bill crossed ₹2.87 lakh crore in FY 2022-23, as per Union Budget documents.
3. **Over-Procurement and Imbalance:** Procurement is often skewed towards wheat and rice, especially from Punjab and Haryana, ignoring regional crop diversity. This leads to nutritional gaps and stockpile inefficiencies.
4. **Environmental Degradation:** Continuous procurement of water-intensive crops like paddy promotes unsustainable groundwater use. Pun-

jab, contributing over 30% of central rice stocks, faces critical water table depletion.

5. **PDS Leakages and Corruption:** Despite reforms, leakages continue in the PDS system. The Economic Survey 2021-22 estimated leakage rates in some states as high as 25%, resulting in grain diversion.
6. **Quality Degradation:** Long-term storage affects grain quality, leading to undernutrition and wastage. A 2020 FCI audit highlighted over 10% of stocks becoming unfit for human consumption annually.
7. **Lack of Dynamic Buffer Policies:** Buffer norms are not always aligned with real-time demand or climate fluctuations. For instance, excess stocks during COVID-19 led to challenges in distribution due to mobility restrictions, showing the need for more flexible norms.



WAYS TO MAKE EFFICIENT USE OF BUFFER STOCK

1. **Technological Upgradation:** Adoption of e-warehouse receipts, digital inventory systems, and modern storage technologies like steel silos can minimize spoilage. For example, the FCI's pilot project on silo storage in Punjab has shown a reduction in wastage by up to 30%.
2. **Decentralized Procurement:** Encouraging state-level procurement as per local crop patterns reduces transportation costs and promotes local farming communities. States like Chhattisgarh and Odisha have successfully implemented decentralized procurement models under the NFSA.
3. **Dynamic Buffer Norms:** Revising buffer stock norms periodically based on demand trends, climate variations, and production forecasts helps prevent excessive accumulation. The Department of Food and Public Distribution now reviews these norms bi-annually.
4. **Improved Targeting in PDS:** Use of Aadhaar-based authentication, One Nation One Ration Card (ONORC), and end-to-end digitization ensures targeted delivery. According to the Ministry of Consumer Affairs, ONORC has enabled 93 crore portability transactions.
5. **Diversification of Stock:** Including pulses, millets, and edible oils in buffer stocks supports nutritional security and promotes sustainable agriculture. The government's initiative to procure millets under the 'Shree Anna' campaign is a step in this direction.
6. **Public-Private Partnerships (PPPs):** Collaborating with private players for warehousing, logistics, and stock rotation enhances efficiency. Warehousing Development and Regulatory Authority (WDRA) has facilitated over 2,000 registered private warehouses as of 2024.
7. **Transparent and Real-Time Monitoring:** Establishing real-time dashboards for stock levels and movements can improve accountability and decision-making. The FCI's Integrated Management Information System (IMIS) is now operational in all major depots.

CONCLUSION

Buffer stock management remains a cornerstone of India's food security architecture. While it has played a vital role in shielding millions from hunger and inflation, systemic inefficiencies and financial burdens necessitate urgent reforms. Through technological modernization, better targeting, and strategic diversification, buffer stocks can evolve into a more efficient and sustainable instrument of national resilience and food justice.

TRADING AROMAS: THE RISE OF THE SPICE ECONOMY

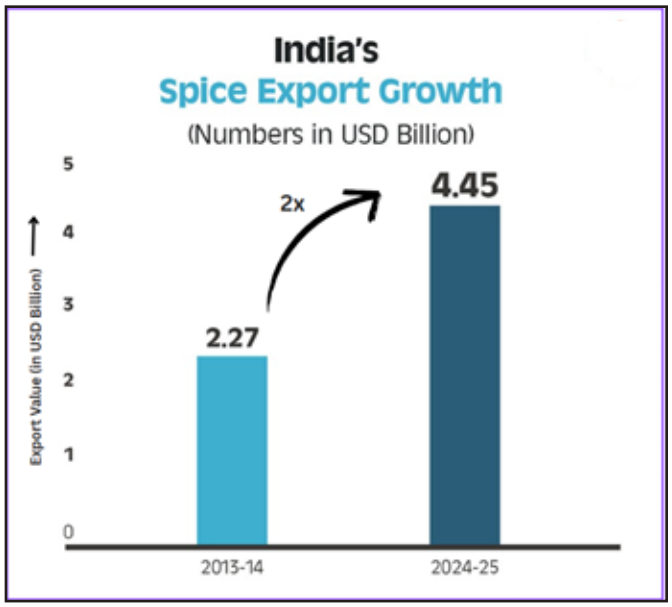
WHY IN THE NEWS?

India, known as the 'Land of Spices', is the world's largest producer, consumer, and exporter of spices. Of the 109 spices recognised by the International

Organisation for Standardisation (ISO), India cultivates over 60 varieties. The spice sector contributes approximately 9% to India's total agricultural exports and over 40% of horticultural exports. With a global footprint spanning over 200 countries, India exports 225+ unique spice products, reinforcing its position as a trusted global supplier of both raw and value-added spices. Historically valued for their medicinal properties, spices remain integral to both Indian heritage and global health-conscious markets.

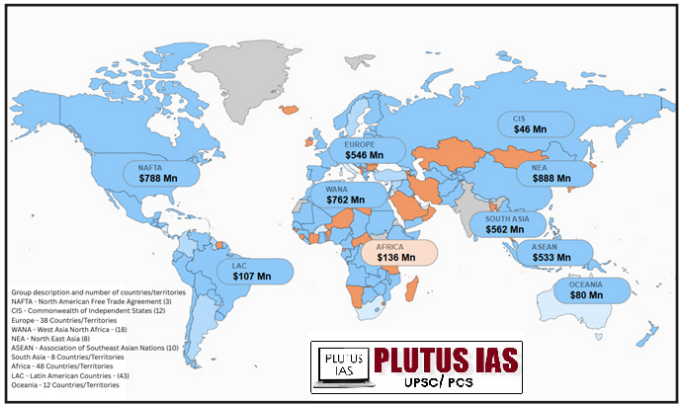
INDIA SPICES ECONOMY

India is the largest exporter of spices and spice items. It retained its position as the leading global exporter, with exports reaching USD 4.45 billion in FY 2024–25. Between 2013–14 and 2024–25, spice exports increased by 88% in volume, and 97% in value (USD)—reflecting India's expanding presence in the global spice market. Gujarat led with 23.53% of total exports, followed by Kerala and Andhra Pradesh. In comparison, during 2013–14, spice exports stood at 817,250 MT, valued at USD 2,267.67 million, showcasing a significant growth trajectory over the years.



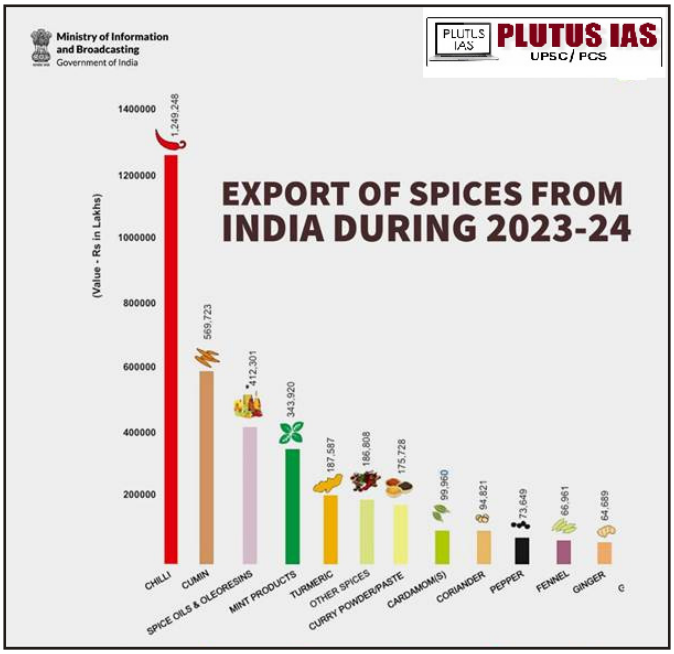
STATUS OF THE SPECIES ECONOMY IN INDIA

Major Export Destinations: By December 2024, India had exported spices and spice products to 200 countries across the globe. The top 10 importers—namely China, the United States, the UAE, Bangladesh, Thailand, Malaysia, the UK, Saudi Arabia, Indonesia, and Germany—together contributed to over 60% of India's total spice export revenue for FY25 (up to February 2025). Among these, the USA imported a wide range of Indian spices, including celery, cumin, curry powder, fennel, fenugreek, garlic, chilli, and mint-based products.



REGION-WISE TOTAL EXPORT FROM INDIA

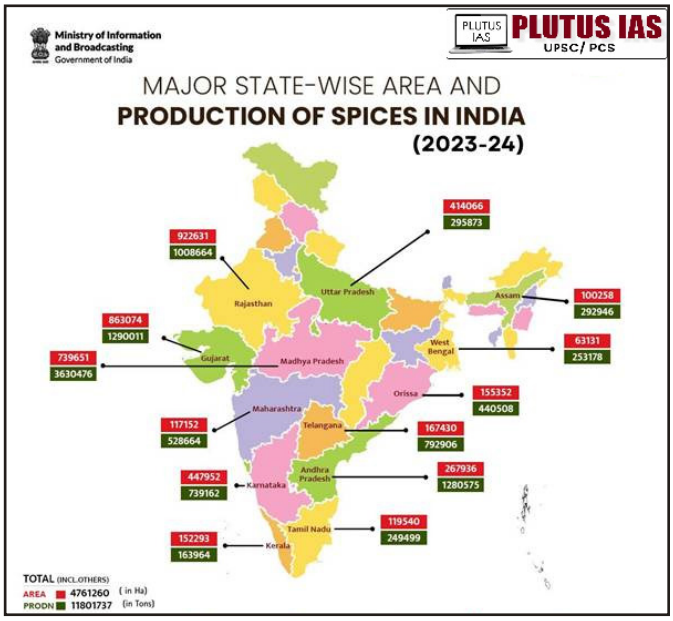
India's Most Exported Spices by Value: In the financial year 2023–24, chilli stood out as India's most exported spice, generating export earnings of USD 1,508.94 million. Cumin followed with USD 700.23 million, while spice oils and oleoresins contributed USD 498.01 million. Additionally, mint products, turmeric, and curry powders or pastes were among the key contributors to India's overall spice export performance.



TOP SPICE-PRODUCING STATES IN INDIA

In the 2023–24 period, Madhya Pradesh emerged as the top spice-producing state in India, contributing

3.63 million tonnes. It was followed by Gujarat and Andhra Pradesh, which produced 1.29 million and 1.28 million tonnes, respectively. Rajasthan and Telangana also registered notable outputs, exceeding 1 million tonnes and 793,000 tonnes. Collectively, these five states form the backbone of India's dominant position in the global spice industry.



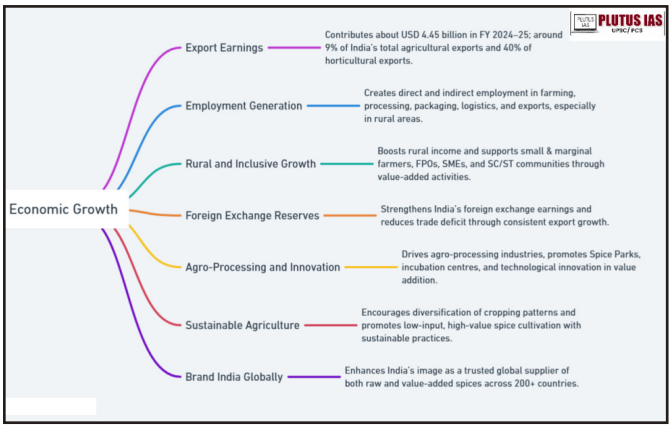
GOVERNMENT INITIATIVES TO PROMOTE THE SPECIES ECONOMY

1. **Export Development and Promotion of Spices:** Launched by the Spices Board of India with a ₹422.30 crore outlay under the 15th Finance Commission (till FY 2025–26), the SPICED scheme aims to boost spice exports, improve cardamom productivity, and enhance post-harvest quality. It supports FPOs, SMEs, and SC/ST groups, promotes value addition, GI-tagged spices, and runs initiatives like Mission Value Addition and Mission Clean and Safe Spices to strengthen India's spice sector.
2. **Setting up and Maintenance of Common Processing Infrastructure (Spices Parks):** To strengthen processing and value addition in spices, the Spices Board has developed eight crop-specific Spices Parks across various states in India. These parks offer shared facilities for cleaning, sorting, grading, grinding, oil extraction, and packaging, catering to the needs of local farmers, exporters, traders, and other stakeholders.

Spices Park	State	Spices Covered
Chhindwara	Madhya Pradesh	Garlic and Chilli
Guna	Madhya Pradesh	Coriander
Guntur	Andhra Pradesh	Chillies
Jodhpur	Rajasthan	Cumin
Ramganjmandi	Rajasthan	Coriander
Puttady	Kerala	Cardamom and Pepper
Raebareli	Uttar Pradesh	Mint
Sivaganga	Tamil Nadu	Chillies and Turmeric

These parks also allocate plots to exporters, traders, and FPOs for establishing their own processing facilities. Their development aims to generate employment, both directly and indirectly, while accelerating the growth of the spice sector and enhancing India's export capacity.

SPICE ECONOMY CONTRIBUTIONS TO ECONOMIC GROWTH



CHALLENGES IN THE SPICE ECONOMY SECTOR

1. **Quality and Contamination Issues:** Spices often face problems like pesticide residue, aflatoxins, and microbial contamination, affecting export quality and global competitiveness.
2. **Post-Harvest Losses:** Inadequate post-harvest infrastructure and improper handling lead to significant losses and reduced market value of spices.
3. **Fragmented Supply Chain:** The spice value chain remains unorganised, with limited farmer access to markets, grading, and value addition facilities.
4. **Price Volatility:** Spices are highly sensitive to climate, pests, and global demand, leading to

unstable prices and income uncertainty for farmers.

5. **Low Productivity:** Traditional cultivation methods, limited access to quality planting material, and poor irrigation result in low yield per hectare in many regions.
6. **Inadequate R&D and Innovation:** Limited investment in research for developing climate-resilient and high-yielding spice varieties hinders long-term sector growth.
7. **Export Barriers and Compliance:** Exporters face challenges in meeting the stringent quality and phytosanitary standards imposed by importing countries, especially in the EU and the US.
8. **Climate Change Impact:** Unpredictable weather patterns, rising temperatures, and irregular rainfall adversely affect spice crop productivity and quality.

WAY FORWARD

1. **Enhance Quality Control:** Strengthen testing labs, enforce quality standards, and promote organic and residue-free spice farming under initiatives like "Mission Clean and Safe Spices."
2. **Improve Post-Harvest Infrastructure:** Invest in modern drying, grading, storage, and packaging facilities to reduce post-harvest losses and maintain export quality.
3. **Strengthen Farmer Collectives:** Encourage the formation of Farmer Producer Organisations (FPOs) to improve bargaining power, market access, and adoption of value-added practices.
4. **Ensure Price Stability:** Develop price forecasting systems, provide crop insurance, and explore Minimum Support Price (MSP) models for key spices to reduce farmer vulnerability.
5. **Increase Productivity:** Supply quality seeds and planting materials, promote Good Agricultural Practices (GAP), and expand farmer training and extension services.
6. **Boost Research and Innovation:** Support spice-specific R&D through public-private partnerships, and foster innovation via Spice Incubation Centres under the SPICED scheme.
7. **Facilitate Export Compliance:** Train exporters and farmers on international standards (such as EU and US norms) and improve access to certification and testing services.
8. **Address Climate Risks:** Promote climate-resilient spice varieties, adopt water-efficient methods like drip irrigation, and encourage crop diversification to adapt to weather variations

CONCLUSION

India's spice economy stands as a pillar of the nation's agricultural and export sectors, deeply rooted in its cultural heritage and global trade legacy. With rising global demand for natural, organic, and health-enhancing products, Indian spices hold immense potential to drive inclusive rural growth, employment, and foreign exchange earnings. Government initiatives like the SPICED scheme and Spices Parks, coupled with technological upgrades and quality enhancement, are strengthening the sector's foundation. Going forward, a focus on innovation, sustainability, and global market integration will be key to securing India's leadership in the global spice economy.

UNRAVELING THE MYTH: IS IMF FUNDING TERRORISM?

WHY IN THE NEWS?

The IMF's approval of a $1 billion disbursement to Pakistan under the Extended Fund Facility (EFF) has sparked significant controversy, particularly from India. New Delhi has strongly opposed the decision, raising concerns that the funds could be misused to support state-sponsored cross-border terrorism. The approval came after a board meeting in Washington, where the IMF also reviewed a proposed $1.3 billion loan for Pakistan under the Resilience and Sustainability Facility (RSF). India lodged a formal protest, pointing to Pakistan's inadequate progress on IMF reforms and the potential diversion of funds. India abstained from the vote, with the finance ministry warning that rewarding Pakistan's track record of terrorism could set a dangerous precedent.

WHAT IS THE IMF?

The International Monetary Fund (IMF) is a global financial institution headquartered in Washington, D.C., established in 1944 during the Bretton Woods Conference. It aims to promote international

monetary cooperation, secure financial stability, facilitate global trade, support high employment and economic growth, and reduce poverty worldwide. With 190 member countries, the IMF provides short- and medium-term loans to nations facing balance of payments problems, helping them stabilize their economies. It also monitors global economic trends, advises governments on economic policies, and offers technical assistance and training. The IMF's funding comes from its member countries' financial contributions, known as quotas, which also determine their voting power. Through its programs and surveillance functions, the IMF plays a crucial role in maintaining the health and stability of the global financial system.

INTERNATIONAL MONETARY FUND (IMF) MANDATE

1. **Promote International Monetary Cooperation:** The IMF facilitates collaboration among member countries on global monetary issues, exchange rates, and financial stability.
2. **Ensure Exchange Rate Stability:** It aims to maintain orderly exchange rate arrangements and avoid competitive devaluations that could disrupt global trade.
3. **Facilitate Balanced Growth of International Trade:** By promoting trade, the IMF supports employment, income growth, and the reduction of poverty globally.
4. **Provide Financial Assistance:** The IMF lends to member countries facing balance of payments problems to help restore economic stability and confidence.
5. **Surveillance and Policy Advice:** The IMF monitors the global economy and the economic and financial policies of its member countries, offering policy advice to promote macroeconomic stability and growth.
6. **Capacity Development:** It provides technical assistance and training to help countries strengthen their capacity to design and implement effective policies.
7. **Crisis Prevention and Management:** The IMF helps prevent financial crises through early warning systems and helps countries manage crises through lending and policy support.

INTERNATIONAL MONETARY FUND (IMF) FUNDING ANALYSIS

Domain	Description	Examples
Cyber Warfare	✧ Disruption or destruction of digital networks and critical infrastructure.	✧ Hacking, ransomware, cyber espionage, and Chinese cyberattacks on Indian servers.
Information Warfare	✧ Manipulation of information to influence public opinion or decision-making.	✧ Fake news, propaganda, deep-fakes, Russian interference in U.S. elections.
Economic Warfare	✧ Use of financial tools to weaken a country's economy.	✧ Sanctions, trade embargoes, tech denial; U.S. sanctions on Iran and Russia.
Diplomatic Warfare	✧ Strategic use of diplomacy to isolate or pressure a country.	✧ Expelling diplomats, blocking global alliances; Isolation of North Korea.
Space Warfare	✧ Targeting or jamming of space-based assets like satellites.	✧ Anti-satellite weapons, GPS signal disruption; ASAT tests by major powers.

COMPARATIVE ANALYSIS: KINETIC VS NON-KINETIC WARFARE

Aspect	Kinetic Warfare	Non-Kinetic Warfare
Nature	✧ Physical violence, direct confrontation	✧ Psychological, economic, cyber, diplomatic, or information-based
Means Used	✧ Armed forces, missiles, tanks, bombs	✧ Cyberattacks, propaganda, sanctions, space systems, and coercive diplomacy
Actors	✧ Primarily state militaries	✧ States, non-state actors, hackers, proxy groups
Visibility	✧ Highly visible (media coverage, battlefield action)	✧ Often covert, difficult to detect or attribute
Impact	✧ Immediate physical destruction and casualties	✧ Long-term strategic destabilisation, societal or economic erosion
Cost	✧ High financial, human, and material costs	✧ Lower immediate cost, but potential for massive long-term consequences
Duration	✧ Generally time-bound and geographically limited	✧ Continuous or prolonged without a formal declaration of war
Legal Framework	✧ Governed by international humanitarian laws (e.g., the Geneva Conventions)	✧ Often falls in legal grey zones; lacks clear international regulation

INTERNATIONAL MONETARY FUND (IMF) IS FUNDING TERRORISM.

1. **No Direct Funding to Terrorist Entities:** The IMF strictly lends to sovereign governments and central banks, not non-state actors, making direct funding of terrorism institutionally impossible.
2. **Indirect Risks via Corrupt Regimes:** In countries with corrupt institutions or poor governance, IMF funds may be diverted to military or intelligence wings, which may support militant groups. Example: Allegations against Pakistan's military for backing proxy terror outfits using public funds.
3. **Repeated Bailouts to High-Risk Nations:** The IMF has granted repeated bailouts to nations like Pakistan and Egypt, despite their questionable human rights records and links to extremism, indirectly enabling such regimes.
4. **Inadequate Oversight After Disbursement:** The IMF monitors macroeconomic indicators but has limited control over how loans are actually used on the ground, opening the door to misuse. Example: Concerns in Yemen, Afghanistan (pre-Taliban), and Sudan.
5. **Geopolitical Favouritism Undermines Accountability:** Powerful IMF members (e.g., the U.S.) influence funding decisions for strategic allies, even if those allies are linked to extremist sponsorship. Example: U.S. support for IMF loans to Pakistan during the War on Terror era.
6. **Ignoring FATF Grey List Status:** Countries flagged by the Financial Action Task Force (FATF) for terrorism financing have still received IMF funds. Example: Pakistan received IMF aid in 2019 while on FATF's Grey List.
7. **Support for Authoritarian Regimes That Fuel Radicalisation:** IMF funds can prop up governments whose actions — repression, marginalization — foster radical extremism, contributing indirectly to terrorism.
   Example: Loans to Egypt and Myanmar despite crackdowns on opposition and minorities.

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8. **Weak Conditionalities in Conflict Zones:** IMF programs in conflict-affected or fragile states often lack strong transparency, disarmament, and anti-terror clauses, risking indirect harm. Example: Sudan and Afghanistan prior to regime collapses.

INDIA STANDS ON IMF

1. **Advocacy for Equitable Quota Reforms:** India consistently demands quota and governance reforms in the IMF to better reflect the growing economic weight of emerging and developing economies, including itself. Example: India supports shifting quota shares from over-represented to under-represented countries.
2. **Support for Multilateralism & Financial Stability:** India supports the IMF's central role in global economic stability, financial surveillance, and crisis response but urges more inclusive policy frameworks for developing nations.
3. **Opposition to One-size-fits-all Conditionalities:** India emphasises that IMF's structural adjustment programs should be context-specific and not impose harsh, uniform austerity measures that hurt vulnerable populations.
4. **Call for Enhanced Voice of the Global South:** India, as a leader among G20 and BRICS nations, advocates for greater representation of the Global South in IMF decision-making processes. Example: During India's G20 Presidency in 2023, it pushed for reforms in global financial institutions, including the IMF.
5. **Responsible Borrower with Strong IMF Ties:** India has not sought IMF bailouts since 1991 and is now seen as a responsible stakeholder, contributing to IMF resources (e.g., NAB, PRGT) rather than depending on them.
6. **Support for Debt Sustainability in Developing Countries:** India supports IMF efforts to address debt vulnerabilities in low-income countries, especially in Africa, but demands fair burden-sharing by all creditors, including private and bilateral lenders.
7. **Focus on Development-Centric IMF Role:** India urges the IMF to balance its role in macroeconomic stability with support for inclusive growth, infrastructure financing, and social development in the Global South.

INTERNATIONAL MONETARY FUND (IMF) OPENNESS AND TRANSPARENCY

1. **Commitment to Public Disclosure:** The IMF maintains a Transparency Policy aimed at publishing most of its reports, country assessments (Article IV Consultations), and lending program details on its website. Example: Staff reports, financial statements, and Executive Board assessments are available online.
2. **Access to Information Policy:** Since 2013, the IMF has followed an "even-handed" and time-based disclosure approach, where most country documents are published within 14 days of Executive Board approval—unless the country objects.
3. **Publication of Surveillance Reports:** The IMF publishes Global Financial Stability Reports, World Economic Outlook, and Fiscal Monitor Reports, providing global data and independent analysis accessible to the public and policymakers.
4. **Open Data Initiatives:** The IMF hosts the IMF Data Portal, offering free access to databases such as International Financial Statistics (IFS), Balance of Payments Statistics, and Government Finance Statistics. This promotes data-driven decision-making and academic research.
5. **Independent Evaluation Office (IEO):** The IEO conducts objective assessments of IMF policies and programs and publishes its findings to enhance institutional accountability and learning.
6. **Engagement with Civil Society and Media:** The IMF conducts press briefings, stakeholder consultations, and civil society forums to explain its policies and decisions, promoting greater public understanding.
7. **Criticism of Selective Transparency:** Despite its efforts, critics argue that IMF transparency can be selective and politically influenced, especially regarding internal deliberations, negotiation processes, or decisions involving powerful countries.
8. **Ongoing Reforms for Enhanced Accountability:** The IMF is currently working to strengthen grievance mechanisms, improve real-time transparency in emergency lending, and expand disclosure of debt sustainability analyses.

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CONCLUSION

The IMF plays a pivotal role in global economic governance by offering financial support, surveillance, and policy advice to stabilise economies in crisis. However, its recent decision to approve funding for Pakistan has reignited concerns over the misuse of resources in countries with weak governance and links to terrorism financing. While the IMF does not directly fund terrorist entities, the lack of granular post-disbursement oversight and geopolitical biases in lending decisions raise serious accountability questions. India's strong protest underscores the need for tighter anti-terror safeguards, enhanced transparency, and reform in lending practices to prevent inadvertent support to regimes that may sponsor or tolerate terrorism. As a responsible stakeholder, India continues to push for a more inclusive, transparent, and development-focused IMF that aligns with the interests of the Global South while maintaining global financial stability.

INDIA'S POWER SECTOR AT A CROSSROADS: GROWTH AMIDST EMERGING OVERSUPPLY RISKS

WHY IN THE NEWS?

India's power sector is currently facing a potential oversupply crisis, as highlighted by a recent Fitch Ratings report. The warning comes in the backdrop of continued sluggish electricity demand growth—around 4% in FY25—while power generation capacity continues to expand rapidly. This growth rate is nearly half of what was seen during FY22–FY24, where demand grew by about 8%. Despite achieving a record peak demand of 250 GW in FY25 and reducing national energy shortages to just 0.1%, the mismatch between capacity addition and actual consumption is raising concerns. Since FY2014, installed power generation capacity has increased by 83.8%, from 249 GW to 457 GW (as of November 2024), significantly improving power availability—rural areas now receive 21.9 hours of supply daily (up from 12.5 hours in 2014), while urban areas get 23.4 hours. However, global uncertainties such as India-Pakistan tensions, disruptions in international trade, and potential U.S. tariffs could impact GDP growth (projected at 6.4% in FY26), thereby affecting future power demand.



POWER SECTOR BASKET IN INDIA

Energy Source	Installed Capacity (GW)	Share in Total Capacity (%)	Source
1. Thermal Power			
– Coal	~206	~45.0%	Central Electricity Authority (CEA)
– Gas	~25	~5.5%	CEA
– Diesel	~0.5	~0.1%	CEA
Subtotal – Thermal	~231.5	~50.6%	

2. Renewable Energy			
– Solar	~76	~16.6%	Ministry of New and Renewable Energy (MNRE)
– Wind	~46	~10.1%	MNRE
– Small Hydro (<25 MW)	~5	~1.1%	MNRE
– Biomass & Waste-to-Energy	~10	~2.2%	MNRE
Subtotal – Renewable	~137	~30.0%	
3. Large Hydro (>25 MW)	~52	~11.3%	Central Electricity Authority (CEA)
4. Nuclear Power	~7	~1.5%	Nuclear Power Corporation of India Ltd. (NPCIL)
TOTAL INSTALLED CAPACITY	~457 GW	100%	

GOVT. INITIATIVES TO PROMOTE THE POWER SECTOR

1. **Revamped Distribution Sector Scheme (RDSS):** Aims to improve the operational efficiency and financial sustainability of DISCOMs by reducing AT&C losses and enhancing infrastructure with smart metering and feeder separation.
2. **Production Linked Incentive (PLI) Scheme for Solar Manufacturing:** Promotes domestic manufacturing of high-efficiency solar PV modules with a target to reduce import dependence and boost renewable energy capacity.
3. **Ujjwal DISCOM Assurance Yojana (UDAY):** A financial restructuring plan to improve the financial health of power distribution companies and ensure affordable power supply.
4. **National Electricity Plan (NEP):** Provides a long-term roadmap for power generation and capacity addition, emphasising renewable integration and reduced dependence on coal.
5. **One Nation One Grid – One Frequency:** Ensures seamless power transmission across states through a unified national grid, enhancing energy accessibility and efficiency.
6. **Green Energy Corridor Project:** Focuses on the development of dedicated transmission networks for renewable energy to ensure grid stability and smooth power evacuation.
7. **Saubhagya Scheme (Pradhan Mantri Sahaj Bijli Har Ghar Yojana):** Achieved near-universal household electrification across the country by providing last-mile connectivity.
8. **Hydrogen Mission & Pumped Hydro Development:** Encourages green hydrogen production and storage-based hydro power to support grid balancing and clean energy transition.

ISSUES IN INDIA'S POWER SECTOR

1. **Demand-Supply Mismatch:** Sluggish electricity demand (~4–5%) despite rising capacity is leading to oversupply concerns.

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2. **DISCOM Financial Stress:** High AT&C losses, poor billing efficiency, and mounting dues undermine sector stability.
3. **Coal Dependence:** Heavy reliance on coal (~50% of generation) raises pollution and import dependency.
4. **Transmission Bottlenecks:** Outdated infrastructure hampers power evacuation and renewable integration.
5. **Renewable Integration Issues:** Intermittency, lack of storage, and land acquisition challenges delay clean energy expansion.
6. **Regulatory Hurdles:** Complex policies, tariff uncertainties, and slow approvals deter private investment.
7. **Financing Constraints:** Limited low-cost financing and high upfront costs affect project viability, especially for renewables.
8. **Environmental Concerns:** Emissions from thermal plants and social resistance to large projects pose sustainability challenges.

WAY FORWARD

1. **Boost Renewable Integration:** Invest in grid modernization, battery storage, and smart grids to handle variable renewable energy efficiently.
2. **Strengthen DISCOMs:** Ensure financial viability through reforms like smart metering, privatization of loss-making utilities, and timely subsidy disbursements.
3. **Diversify Energy Mix:** Reduce coal dependence by promoting solar, wind, hydro, nuclear, and green hydrogen.
4. **Enhance Transmission Infrastructure:** Expand and modernise interstate transmission networks to improve reliability and renewable power evacuation.
5. **Promote Energy Efficiency:** Scale up programs like PAT (Perform, Achieve, and Trade) and UJALA to reduce energy intensity.
6. **Ease Regulatory Frameworks:** Simplify clearance processes, ensure tariff stability, and promote open access to encourage private investment.
7. **Support R&D and Innovation:** Promote domestic development of energy storage, smart meters, and clean technologies through public-private partnerships.
8. **Ensure Just Energy Transition:** Create green jobs, reskill coal sector workers, and focus on equitable energy access across regions.

CONCLUSION

India's power sector stands at a critical juncture—characterised by vast capacity, rising renewable ambition, and persistent structural challenges. While significant progress has been made in expanding generation and electrification, issues like demand-supply mismatch, financial distress of DISCOMs, and overdependence on coal threaten long-term sustainability. To address these, a balanced approach involving renewable integration, technological upgrades, financial reform, and equitable transition is essential. With consistent policy support, private sector participation, and innovative solutions, India can achieve a resilient, inclusive, and green energy future aligned with its developmental and climate goals.

NEW TARIFF WAR BREWS BETWEEN MAJOR ECONOMIES: INDIA VS US

WHY IN THE NEWS?

India has formally notified the World Trade Organisation (WTO) of its decision to suspend trade concessions granted to the United States, in response to the US safeguard duties on steel, aluminium, and related products.



The move comes as part of India's plan to impose retaliatory import duties on select US goods, potentially effective from early June 2025. According to the think tank Global Trade Research Initiative (GTRI), this step could strain ongoing trade

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negotiations between the two countries unless the US agrees to consultations or withdraws the tariffs. The retaliatory duties aim to counter the adverse impact of US tariffs on Indian exports of steel and aluminium.

WHAT IS A TARIFF?

A tariff is a tax imposed by a government on imported or exported goods. It is mainly used to protect domestic industries by making foreign products more expensive. Tariffs can also generate revenue for the government. They are of different types, such as ad valorem (percentage-based) and specific (fixed amount per unit). Tariffs may lead to higher prices for consumers and can affect international trade relations. For example, imposing a tariff on imported steel can make local steel more competitive.

USA TARIFF POLICY ON INDIA

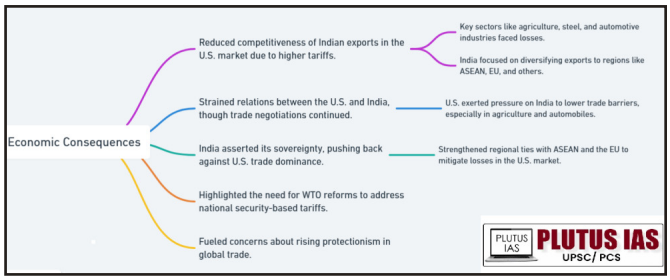
1. **Digital Services Tax (DST) and Section 301 Investigation:** The U.S. initiated a Section 301 investigation against India's digital services tax (DST), which targets revenue from large foreign tech companies like Google and Amazon. The U.S. argued that it unfairly discriminates against American businesses.
2. **Impact on Agricultural Products:** The U.S. has pushed for India to lower its tariffs on agricultural products, including high-value items like almonds, apples, and wines, which face high import duties in India. India has resisted lowering these tariffs, leading to ongoing trade tensions.
3. **Increased Scrutiny on Trade Deficits:** The U.S. has consistently raised concerns over India's trade surplus with the U.S., which exceeds $45 billion, and has used tariffs as leverage to demand market access for U.S. exports like agricultural goods and medical devices.
4. **Bilateral Trade Negotiations and Phase 1 Agreement:** While the U.S. and India have been engaged in talks to resolve tariff issues, the Phase 1 trade agreement reached in early 2020 did not provide a comprehensive solution.
5. **WTO Dispute Settlement:** The U.S. has repeatedly brought India to the WTO over trade issues like tariff hikes, subsidies, and market access. India has won some cases but remains under pressure to align its trade policies with global norms, especially in the context of the ongoing tariff dispute.
6. **Tariff Impact on India's Exports:** The U.S. tariffs, especially on steel and aluminium, have had a significant impact on India's export industries. The tariffs have increased the cost of Indian goods in the U.S. market, potentially reducing India's export competitiveness.
7. **Biden Administration's Approach:** While the Biden administration has not significantly altered the tariff policy, there have been indications of a more diplomatic approach to resolving trade issues with India. However, strategic priorities such as trade in critical sectors (e.g., semiconductors, defence) are likely to influence future tariff decisions.

INDIA'S RETALIATION AGAINST THE U.S TARIFF

Aspect	Details
Key Retaliatory Actions	✧ Imposition of tariffs on U.S. goods (motorcycles, wine, aluminium, steel, agricultural products) ✧ WTO dispute against U.S. tariffs on steel and aluminium (Section 232) ✧ Defence of India's **Digital Services Tax (DST)** against U.S. claims
Economic Impact	✧ Increased export costs for Indian goods to the U.S., reducing competitiveness in key sectors ✧ Focus on diversifying export markets to regions like ASEAN, EU, and others

Diplomatic Consequences	✧ Strained U.S.-India relations, with trade talks continuing despite tensions ✧ U.S. pressure for trade liberalisation in the agriculture and automobile sectors
Geopolitical Implications	✧ Push for asserting trade sovereignty and promoting a balanced trade framework with the U.S.
Global Trade Impact	✧ Calls for WTO reforms to address national security tariffs and unilateral trade actions ✧ Potential reconsideration of U.S. trade policy toward emerging markets like India

CONSEQUENCES OF INDIA'S RETALIATION



IMPACTS ON THE INDIA-USA RELATIONSHIP

1. **Strained Diplomatic Ties:** Tariff disputes and retaliatory measures led to tensions, challenging overall bilateral relations.
2. **Trade Imbalances:** The U.S. raised concerns over India's trade surplus, with both countries at odds over tariffs and market access.
3. **Ongoing Trade Talks:** Despite tensions, both nations continue negotiations for potential Free Trade Agreements (FTAs) and the resolution of trade issues.
4. **Strategic Partnership:** Strong cooperation remains in defence, counter-terrorism, and regional security, despite trade disputes.
5. **Digital Trade Issues:** India's Digital Services Tax (DST) caused friction, especially with U.S. tech companies, though discussions continue.
6. **Domestic and Political Pressures:** Political pressures in both countries shape trade policy decisions, with India seeking to protect domestic industries.
7. **Future Collaboration Potential:** Opportunities for comprehensive trade deals and global trade reforms remain if both sides address core issues.

WAY TO NAVIGATE TARIFF CHALLENGES

1. **Strengthen Bilateral Trade Talks:** Continue regular dialogues to resolve tariff disputes and enhance mutual understanding. Constructive engagement can prevent escalation and foster long-term solutions.
2. **Pursue Free Trade Agreements (FTAs):** Negotiating FTAs can reduce tariff barriers and ensure stable market access. A comprehensive U.S.-India FTA would benefit key sectors on both sides.
3. **Diversify Export Markets:** Reducing reliance on the U.S. by expanding trade with ASEAN, EU, and others is vital. It helps buffer against external shocks and geopolitical trade risks.
4. **Use WTO Mechanisms:** Utilise WTO dispute settlement to challenge unjustified tariffs like Section 232. This ensures trade conflicts are addressed through a rules-based system.
5. **Reform Domestic Tariffs:** Rationalizing high import duties can ease global pressure and improve competitiveness. It may also encourage reciprocal tariff reductions by trade partners.
6. **Boost Export Competitiveness:** Invest in quality, innovation, and value addition to offset higher tariffs abroad. Competitive pricing and global standards enhance market sustainability.
7. **Engage in Digital Trade Frameworks:** Cooperate on digital tax norms, e-commerce, and data sharing protocols. This reduces friction in a growing area of bilateral trade interest.
8. **Promote Strategic Diplomacy:** Align trade issues with broader strategic and security cooperation. Strong geopolitical ties can soften trade tensions and open dialogue channels.

CONCLUSION

The recent escalation in tariff-related tensions between India and the United States underscores the complex interplay of trade, diplomacy, and strategic interests. While the U.S. tariffs on Indian steel and aluminium and India's retaliatory measures have strained trade relations, both nations continue to engage in dialogue, reflecting the resilience of their broader partnership. Strategic cooperation in defence, technology, and geopolitics remains largely unaffected, highlighting the depth of bilateral ties. To navigate these challenges, both countries must pursue a balanced approach, resolving disputes through WTO mechanisms, exploring Free Trade Agreements, and aligning trade policies with long-term strategic goals. Diversifying markets, reforming domestic tariffs, and fostering competitiveness will also be key for India.

OPEC+, PEAK DEMAND, AND INDIA: DECODING THE OIL PRICE PUZZLE

WHAT IS OPEC?

The Organisation of the Petroleum Exporting Countries (OPEC) is a permanent intergovernmental organisation established in 1960 by five founding members: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Its primary aim is to coordinate and unify petroleum policies among member countries to ensure fair and stable oil prices, a regular supply to consumers, and a fair return on capital to producers. Over the years, OPEC has expanded to include several other oil-exporting nations. It plays a significant role in the global oil market by regulating oil production levels among its members to influence global crude prices. OPEC's decisions can impact global inflation, trade balances, and energy security. Since 2016, OPEC has coordinated with other oil producers like Russia under the OPEC+ framework.

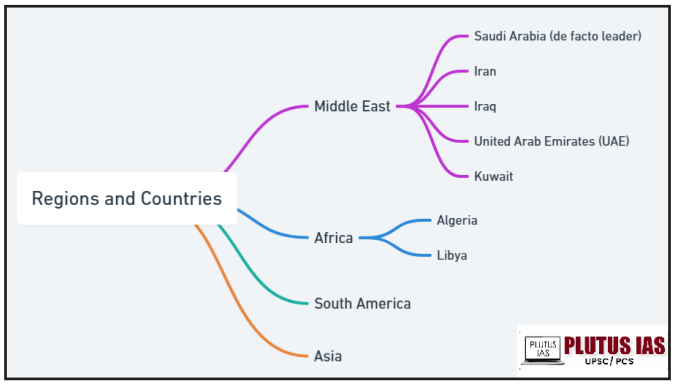


EVALUATIONS OF OPEC AND OPEC+

Aspect	OPEC	OPEC+
Formation	✧ Established in 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.	✧ Formed in 2016 as a coalition of OPEC and non-OPEC oil producers.
Members	✧ 13 member countries (mostly from the Middle East, Africa, and South America).	✧ OPEC members + 10 non-OPEC countries, including Russia, Mexico, Kazakhstan, etc.
Objective	✧ Coordinate oil production policies to stabilise oil markets and prices.	✧ Enhance cooperation between OPEC and non-OPEC producers to manage oil supply and prices.

Key Role	✧ A traditional leader in oil production management and price regulation.	✧ The broader alliance that wields greater influence over global oil supply and pricing.
Influence on Oil Prices	✧ Significant, especially in earlier decades.	✧ Greater combined influence due to increased share of global oil production (~55%).
Decision-Making	✧ Internal consensus among OPEC members.	✧ Requires alignment between OPEC and non-OPEC partners, especially major producers like Russia.

MEMBERS OF OPEC



MANDATE OF AN OPEC COUNTRY

1. **Oil Market Stabilization:** OPEC countries aim to stabilize the international oil market by managing oil production levels and preventing extreme price volatility.
2. **Coordinated Petroleum Policies:** They work together to coordinate and unify petroleum policies to influence oil prices and maintain market balance.
3. **Fair Pricing for Producers:** OPEC ensures that oil-exporting nations receive fair and stable prices for their crude oil, safeguarding their economic interests.
4. **Regular Supply to Consumers:** Member countries are committed to providing a consistent and secure supply of oil to global consumers to avoid disruptions.
5. **Investment and Revenue Security:** They strive to offer fair returns on investment in the oil sector and ensure stable revenues for oil-producing economies.
6. **Collective Output Management:** Through agreed production quotas, OPEC countries adjust output levels collectively to match market demand and supply.
7. **Promotion of Technical Cooperation:** OPEC facilitates knowledge-sharing, training, and technical cooperation among members to boost operational efficiency and innovation.
8. **Support for Economic Development:** By leveraging oil revenues and policies, member countries use OPEC as a platform to support national development goals and diversify their economies.

RECENT ISSUE IN THE OPEC COUNTRY

1. **Quota Non-Compliance:** Countries like Kazakhstan, Iraq, and UAE are exceeding production limits, causing tensions within OPEC+ and prompting compensation mechanisms.
2. **Falling Global Oil Demand:** OPEC cut its 2025 oil demand growth forecast due to economic slowdown, trade issues, and renewable energy adoption.
3. **Saudi Arabia's Crude Burn:** To meet high summer electricity demand, Saudi Arabia is increasing crude use for power, reducing export potential.
4. **Delayed Policy Decisions:** Output policy meetings are being postponed due to internal disagreements, creating market uncertainty.
5. **Economic Impact of Cuts:** Continued voluntary production cuts have reduced GDP forecasts for Gulf nations (GCC) by 1.4 percentage points.

6. **Declining Market Control:** Rising non-OPEC oil production, especially from the U.S., is weakening OPEC+'s influence on global oil prices.

INDIA'S ROLE IN OPEC

1. **Major Oil Importer:** India is the world's third-largest oil importer, sourcing over 80% of its crude needs, with ~71% from OPEC nations.
2. **Rising Energy Demand:** India's oil demand is projected to grow by 3.39% in 2025 and may double by 2045, reaching 11.7 million barrels/day.
3. **Strategic Energy Dialogue:** India and OPEC hold regular high-level meetings (since 2015) to promote energy security, affordability, and market stability.
4. **Refining Expansion:** India, the fourth-largest refiner, plans to expand refining capacity to 9 million barrels/day by 2030 to meet rising demand.
5. **Energy Diversification:** India is investing in renewables, hydrogen, and efficiency to reduce dependence on fossil fuel imports.
6. **Global Market Influence:** India's growing consumption impacts global oil demand and shapes OPEC's supply and pricing strategies.
7. **Investment Collaboration:** OPEC countries are investing in India's refining and energy infrastructure, deepening bilateral ties.
8. **Price Stability Advocacy:** India supports stable oil prices through OPEC dialogue to protect economic growth and consumer interests.

HOW OPEC COUNTRIES CONTRIBUTE TO INDIA'S OIL DEPENDENCY

1. **Major Supplier of Crude Oil:** OPEC countries supply around 71% of India's total crude oil imports, making them the largest source of India's imported oil.
2. **Meeting Growing Demand:** With India's rising energy needs, OPEC countries play a vital role in fulfilling the increasing volume of crude oil required.
3. **Energy Security Partner:** OPEC nations are key stakeholders in ensuring India's energy security by providing a steady and reliable flow of crude oil.
4. **Price Influence:** Production decisions by OPEC influence global oil prices, which directly affect India's import costs and fuel prices domestically.
5. **Strategic Dialogue and Cooperation:** India engages in high-level dialogues with OPEC to discuss market stability, supply reliability, and cooperative strategies for energy security.
6. **Investment and Infrastructure Collaboration:** OPEC countries invest in India's refining and energy infrastructure, helping boost India's capacity to process crude oil efficiently.
7. **Refining Capacity Support:** OPEC oil supports India's expanding refining sector, which is essential for meeting both domestic and export fuel demands.
8. **Diversification Encouragement:** Through collaborations, OPEC supports India's efforts to diversify energy sources while still maintaining crude oil supply stability.
9. **Geopolitical and Economic Impact:** OPEC's production policies and geopolitical dynamics affect India's oil import strategy, trade balances, and economic planning.

CONCLUSION

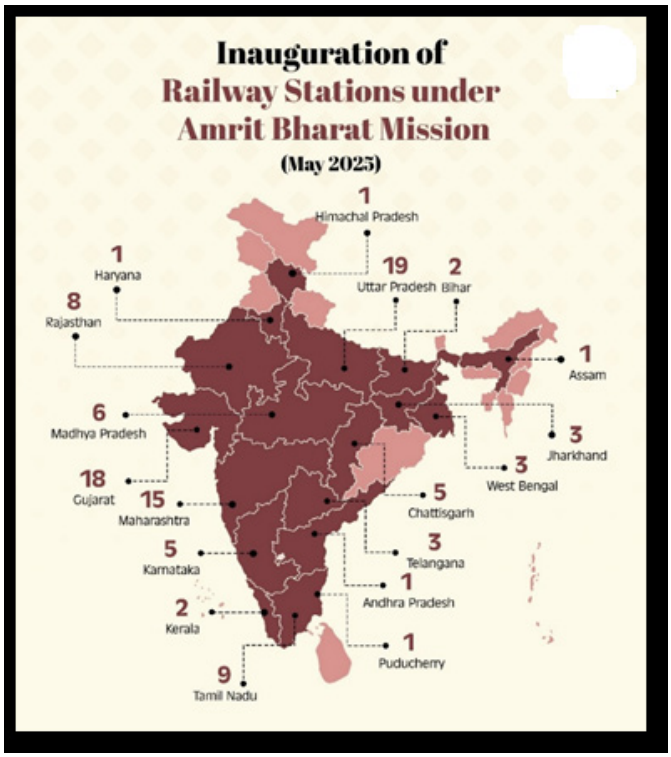
OPEC and the broader OPEC+ alliance continue to play a crucial role in shaping the global oil market by managing production levels to balance supply and demand. Despite recent challenges like quota non-compliance and fluctuating demand, OPEC's influence on oil prices and energy security remains significant. For India, OPEC countries are indispensable partners, supplying the majority of its crude oil imports and engaging in strategic dialogues to ensure market stability and energy security. As India's energy needs rapidly grow, collaboration with OPEC countries not only supports its refining and infrastructure expansion but also helps India navigate global price volatility.

AMRIT BHARAT STATION SCHEME: A NEW ERA FOR INDIAN RAIL INFRASTRUCTURE

WHY IN THE NEWS?

Prime Minister Shri Narendra Modi is set to inaugurate 103 Amrit Bharat stations across 18 states from Bikaner, Rajasthan, under the Amrit Bharat Station Scheme. This event marks a major milestone in India's effort to modernise its railway

infrastructure, transforming old and often neglected railway stations into modern, passenger-friendly, and aesthetically appealing public spaces. These revamped stations will feature improved amenities, better accessibility, upgraded infrastructure, and a boost to local connectivity and economic growth. The inauguration reflects the government's commitment to infrastructure development and aims to enhance the overall travel experience for millions of daily passengers across the Indian Railways network.



AMRIT BHARAT STATION SCHEME: VISION AND OBJECTIVE

VISION

The Amrit Bharat Station Scheme is a long-term, need-based initiative aimed at the holistic redevelopment of over 1,300 railway stations across the country. It adopts a phased and inclusive approach, allowing each station to be modernised according to its specific needs and context.

KEY FEATURES OF THE SCHEME

1. **Modern Amenities:** Stations will have roof plazas, aesthetic façades, food courts, resurfaced platforms, and kids' play areas.
2. **Passenger Comfort:** Focus on safety, convenience, clean toilets, free Wi-Fi, digital signage, and waiting lounges.
3. **Accessibility for All:** Divyang-friendly features like ramps, Braille signages, low-height counters, lifts, and tactile paths under Sugamya Bharat Abhiyan.
4. **Cultural & Regional Design Themes:** Station architecture inspired by local heritage (e.g., Modhera Sun Temple, Jagannath Temple, Chola architecture).
5. **One Station One Product (OSOP):** Promotes local artisans and products through kiosks showcasing regional crafts, handlooms, and foods.
6. **Eco-Friendly Development:** Emphasis on green practices—landscaping, noise-reduction measures, sustainable materials, and energy efficiency.
7. **Urban Connectivity:** Integration with roads, metros, and bus networks; improved lighting, parking, and pedestrian infrastructure.
8. **City-Centric Transformation:** Stations to serve as vibrant city centres, beyond transit points, with business lounges and community spaces.



EVOLUTION OF THE AMRIT BHARAT STATION SCHEME

1. **Conceptual Origin (2021):** The idea of station modernisation began with Gandhinagar Capital Railway Station, the first to be redeveloped with modern facilities and a 5-star hotel.
2. **Inspiration from Rani Kamalapati Station:** Habibganj Station (renamed Rani Kamalapati) became a model for future upgrades with airport-like features and smart amenities.
3. **Launch of Amrit Bharat Station Scheme:** Officially launched to systematically redevelop 1,309 stations across India in phases based on local needs and potential.

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4. **Integration with National Missions:** Aligned with schemes like Sugamya Bharat Abhiyan for accessibility and Swachh Bharat Mission for cleanliness.
5. **Incorporation of OSOP (One Station One Product):** Evolved to include promotion of local artisans and regional products through dedicated kiosks at stations.
6. **Architectural Localization:** Shift towards culturally themed station designs to reflect India's rich heritage and identity.
7. **Focus on Sustainability:** Adopted green technologies, solar energy, noise-free tracks, and eco-friendly construction materials.
8. **From Transit Points to Urban Hubs:** Vision expanded to make stations multifunctional—integrated with cities and offering commercial, social, and mobility services.

CONCLUSION

The Amrit Bharat Station Scheme is not merely a railway modernization initiative—it is a visionary step towards building smart, inclusive, and sustainable urban infrastructure. By reimagining railway stations as clean, accessible, culturally rooted, and future-ready public spaces, the scheme reflects India's broader goals of urban rejuvenation, inclusive development, and national pride. As Indian Railways evolves into a more passenger-centric and globally competitive network, the Amrit Bharat initiative stands as a symbol of purposeful progress. These stations are no longer just platforms for travel—they are becoming gateways of transformation, echoing the aspirations of a New India.

PRELIMS QUESTIONS

1. With reference to the Direct Benefit Transfer (DBT) system in India, con-sider the following statements:

1. DBT aims to transfer subsidies directly to beneficiaries through their bank ac-counts to reduce leakages.
2. JAM Trinity stands for Jan Dhan, Aadhaar, and Mobile.
3. DBT has increased the government's subsidy burden as more beneficiaries have been added.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

2. With reference to the Eight Core Industries of India, consider the follow-ing statements:

1. The Eight Core Industries account for more than 50% of the weight of items in-cluded in the Index of Industrial Production (IIP).
2. Electricity, steel, and cement are part of the Eight Core Industries.
3. The performance of the Eight Core Industries is published by the Ministry of Sta-tistics and Programme Implementation.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 2 only
(c) 2 and 3 only (d) 1, 2 and 3

3. Which of the following statements about Inland Water Transport (IWT) in India is/are correct?

1. IWT contributes over 20% to India's freight transport.
2. IWT is regulated under the Indian Ports Act, 1908.
3. IWAI is responsible for developing infrastructure on National Waterways.

Select the correct answer using the code given below:

(a) Only 1 and 3 (b) Only 3
(c) 2 and 3 (d) All of the above

4. With reference to the Agricultural and Processed Food Products Export Development Authority (APEDA), consider the following statements:

1. It is a statutory body under the Ministry of Agriculture and Farmers' Welfare.
2. It promotes the export of scheduled agricultural and processed food products.

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3. It is responsible for the implementation of the National Programme for Organic Production (NPOP).

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

5. With reference to the "Orange Economy", consider the following state-ments:

1. It includes sectors like visual arts, music, fashion, media, and design.
2. It contributes to GDP solely through tourism-related activities.
3. India has established a Creative Economy Task Force under the G20 platform.
4. The Orange Economy does not require formal education or skilling.

Which of the statements given above are correct?

(a) 1 and 3 only (b) 2 and 4 only
(c) 1, 3, and 4 only (d) 1, 2, and 3 only

6. Consider the following statements:

1. Buffer norms in India are revised annually.
2. The National Food Security Act (NFSA), 2013 increased dependence on buffer stock.

Which of the above is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

7. With reference to India's spice economy, consider the following statements:

1. India cultivates more than half of the spices recognised by the International Organisation for Standardisation (ISO).
2. Chilli was the top spice exported from India in terms of value in FY 2023–24.
3. The SPICED scheme is implemented by the Agricultural and Processed Food Products Export Development Authority (APEDA).

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

8. Consider the following statements regarding the International Monetary Fund (IMF):

1. The IMF lends directly to non-state actors and private corporations in member countries.
2. IMF funding decisions are solely based on economic criteria without geopolitical influence.
3. India has not sought an IMF bailout since 1991.
4. The IMF publishes Article IV Consultation Reports for transparency.

Which of the statements given above are correct?

A. 1 and 2 only B. 2 and 3 only
C. 3 and 4 only D. 1, 3 and 4 only

9. Which of the following initiatives is aimed at improving the operational efficiency and financial sustainability of DISCOMs in India?

1. Ujjwal DISCOM Assurance Yojana (UDAY)
2. National Electricity Plan (NEP)
3. Revamped Distribution Sector Scheme (RDSS)
4. Saubhagya Scheme

Select the correct answer using the code below:

(a) 1, 2 and 3 only (b) 2, 3 and 4 only
(c) 1, 3 and 4 only (d) 3 and 4 only

10. With reference to recent developments in India-U.S. trade relations, consider the following statements:

1. The U.S. imposed tariffs on Indian steel and aluminium under Section 301 of the Trade Act.
2. India has imposed retaliatory tariffs on selected U.S. agricultural and industrial products.

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3. The Digital Services Tax (DST) imposed by India was a key reason for the U.S. initiating trade investigations.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 2 and 3 only
(b) 1 and 3 only (d) 1, 2, and 3

11. With reference to the Organisation of Petroleum Exporting Countries (OPEC), consider the following statements:

1. OPEC was established in 1960 by five founding members.
2. OPEC+ includes both OPEC and non-OPEC oil-producing countries.
3. Saudi Arabia is the largest oil producer within OPEC.
4. OPEC's primary objective is to increase oil production without regulating prices.

How many of the above statements are correct?

(a) Only one (b) Only two
(c) Only three (d) All four

12. With reference to the Amrit Bharat Station Scheme, consider the following statements:

1. It aims to redevelop over 1,300 railway stations across India in a phased manner.
2. The scheme includes provisions for promoting local products under the 'One District One Product' initiative.
3. Station designs under this scheme are inspired by local art, culture, and architecture.
4. It is being implemented by the Ministry of Housing and Urban Affairs.

Which of the above statements are correct?

(a) 1 and 3 only (b) 1, 2 and 3 only
(c) 1, 3 and 4 only (d) All of the above

ANSWER-KEY

1. (a)	2. (b)	3. (b)	4. (b)	5. (a)	6. (b)
7. (a)	8. (c)	9. (c)	10. (b)	11. (c)	12. (a)

MAINS QUESTIONS

1. Discuss the significance of the direct benefit transfer (dbt) system in enhancing transparency, efficiency, and inclusivity in welfare delivery in india. What are the major challenges it faces, and what steps can be taken to overcome them?

(250 words, 15 marks)

2. Discuss the significance of the core sectors in India's economic develop-ment. Also, highlight key government initiatives taken to promote them and suggest a suitable way forward.

(250 words, 15 marks)

3. Examine the role of IWAI in fostering public-private partnerships (PPP) in the development of inland water transport infrastructure.What are the chal-lenges in attracting private investments in this sector?

(15 marks, 250 words)

4. Discuss the role of the Agricultural and Processed Food Products Export Development Authority (APEDA) in promoting agricultural exports from India. Examine the challenges faced by Indian agri-exports and suggest measures to enhance global competitiveness.

(250 words, 15 marks)

5. Discuss the role of the WAVES Summit in promoting environmental sus-tainability and economic growth in India. How does the concept of the Orange Economy align with India's development goals?

(15 marks, 250 words)

6. Discuss the evolution of the buffer stock policy in India since independence. How has it adapted to the changing needs of food security?

(250 words, 15 marks)

7. India's spice economy is not only a reflection of its agricultural strength but also a gateway to global markets." Discuss the significance of the

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spice sector in India's economic development. Highlight recent initiatives taken by the government to enhance its export potential.

(250 words, 15 marks)

8. "While the IMF aims to ensure global financial stability and assist nations in economic distress, its funding decisions in politically sensitive regions have drawn criticism." Critically analyse the role of the IMF in the context of allegations of indirect support to terrorism, with special reference to India's recent opposition to IMF funding to Pakistan.

(250 words, 15 marks)

9. Discuss the key issues faced by India's power sector, including demand-supply imbalances, financial stress of DISCOMs, and reliance on coal. Suggest a way forward to address these challenges.

(250 words, 15 marks)

10. Discuss the recent tariff tensions between India and the United States, highlighting their impact on bilateral trade relations. What are the possible strategies India can adopt to mitigate such challenges and ensure stable economic ties?

(250 words, 15 marks)

11. Discuss the role of OPEC and OPEC+ in stabilising the global oil market and how their decisions impact India's energy security and economy. In your answer, highlight recent challenges faced by OPEC countries and India's strategic engagement with OPEC.

(250 words, 15 marks)

12. The Amrit Bharat Station Scheme marks a transformative step towards modernising India's railway infrastructure. Discuss the key features, objectives, and broader implications of the scheme in enhancing passenger experience and urban connectivity.

(250 words, 15 marks)





INDIA'S JOURNEY OF HERITAGE PRESERVATION

WHY IN THE NEWS?

World Heritage Day, also known as the International Day for Monuments and Sites, was celebrated on 18th April 2025 with the theme "Heritage under Threat from Disasters and Conflicts: Preparedness and Learning from 60 years of ICOMOS Actions." The day highlights the importance of preserving cultural and natural heritage worldwide, especially in the face of increasing risks from climate change, natural disasters, and conflicts. The World Heritage Convention, adopted by UNESCO in 1972, aims to safeguard such sites. As of October 2024, there are 1,223 World Heritage Sites across 196 countries, including 43 in India. Iconic Indian sites such as the Taj Mahal, Agra Fort, and Ajanta and Ellora Caves were among the first to be listed in 1983, reflecting India's rich cultural legacy and global commitment to heritage conservation.



THE STORY BEHIND WORLD HERITAGE DAY

World Heritage Day is celebrated every year on 18th April. It is also called the International Day for Monuments and Sites. The day is meant to honour and protect human heritage. It also appreciates the people and groups who work to preserve it. The day was started in 1982 by ICOMOS (International Council on Monuments and Sites). Later, in 1983, UNESCO officially adopted it. Every year, ICOMOS gives a special theme for the day. Based on this theme, people and groups hold events and activities around the world to celebrate and protect heritage.

UNDERSTANDING THE WORLD HERITAGE CONVENTION

UNESCO, which stands for the United Nations Educational, Scientific and Cultural Organisation, works to protect and preserve important cultural and natural heritage around the world.

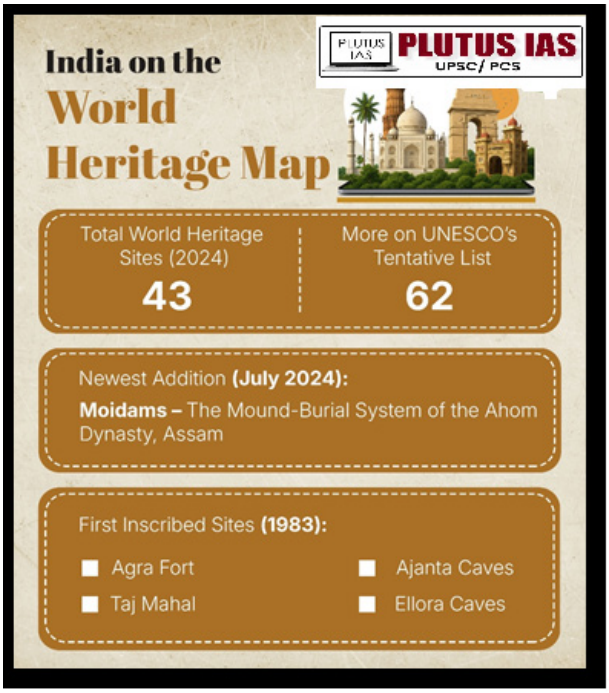


To help with this, UNESCO's member countries adopted the World Heritage Convention in 1972.

This agreement explains what countries need to do to find and take care of special sites that can be added to the World Heritage List. India became part of this Convention in November 1977. Today, the World Heritage List includes 1,223 sites that are considered valuable to all of humanity. These include 952 cultural sites, 231 natural sites, and 40 sites that have both cultural and natural importance. As of October 2024, 196 countries have joined the World Heritage Convention.

WORLD HERITAGE SITES IN INDIA

World Heritage Sites are special places on Earth that have great value for all of humanity. These can be cultural, natural, or a mix of both. They are protected under an international agreement led by UNESCO. UNESCO gives the World Heritage title to places that are culturally, historically or scientifically important.



Over the years, India has steadily expanded its presence on the World Heritage List. In July 2024, a proud addition was made with the inscription of "Moidams: The Mound-Burial System of the Ahom Dynasty" from Assam as a cultural property. With this, India now has 43 sites on the World Heritage List and 62 more on UNESCO's Tentative List. The country's journey began in 1983 with the listing of Agra Fort, followed by the Taj Mahal, Ajanta Caves and Ellora Caves. These sites are preserved not only as symbols of history but also as learning spaces for generations to come.

GOVERNMENT'S INITIATIVES TO PROMOTE INDIA'S RICH CULTURAL HERITAGE



1. **Retrieval of Antiquities:** The Archaeological Survey of India is committed to the protection of cultural property. The government has retrieved 655 antiquities from foreign countries from the year 1976 to 2024, of which 642 antiquities have been retrieved since 2014.
2. **Adopt a Heritage' Scheme:** The "Adopt A Heritage" programme was launched in 2017 and revamped as "Adopt A Heritage 2.0" in 2023. It allows private and public groups to help develop facilities at protected monuments using their Corporate Social Responsibility (CSR) funds.
3. **46th Session of the World Heritage Committee:** Archaeological Survey of India, Ministry of Culture, successfully hosted the 46th Session of the World Heritage Committee in Delhi from 21st to 31st July 2024. The meeting was inaugurated by the Prime Minister and attended by nearly 2900 international and national delegates from more than 140 countries.
4. **Building Monuments of National Importance:** India has 3,697 ancient monuments and archaeological sites declared of national importance. The Archaeological Survey of India (ASI) is responsible for their conservation and maintenance.
5. **Revival and Redevelopment of Heritage Sites:** India has revived key heritage sites through conservation and development projects. The Kashi Vishwanath Corridor in Varanasi, Mahakaal Lok in Ujjain, and Ma Kamakhya Corridor in Guwahati enhance pilgrim experiences and boost tourism.
6. **Must-See Portal:** The Archaeological Survey of India (ASI) has created a portal to showcase "Must-See Monuments and Archaeological Sites of India." It highlights nearly a hundred

prominent sites, including World Heritage properties and UNESCO Tentative List

7. **Digitisation of Cultural Heritage in India:** The National Mission on Monuments and Antiquities (NMMA), set up in 2007, works to digitise and document India's heritage and antiquities. So far, over 12.3 lakh antiquities and 11,406 heritage sites have been recorded. For 2024–25, ₹20 lakh was allocated to the mission.
8. **Status of Classical Languages:** On October 3, 2024, the Government granted classical language status to Assamese, Marathi, Pali, Prakrit, and Bengali, raising the total to 11 classical Indian languages. This move reflects India's strong commitment to preserving its diverse and ancient linguistic heritage.
9. **India's first Archaeological Experiential Museum:** Union Minister Amit Shah inaugurated the Archaeological Experiential Museum in Vadnagar on 16th January 2025. Built at a cost of ₹298 crore, the museum covers 12,500 square meters. It showcases Vadnagar's 2,500-year-old history with over 5,000 artefacts, including ceramics, coins, tools and skeletal remains.
10. **Humayun's Tomb World Heritage Site Museum:** On 29th July 2024, a state-of-the-art museum spanning 100,000 square feet was inaugurated at Humayun's Tomb, a UNESCO World Heritage Site in New Delhi. The museum showcases the site's rich history, architecture, and conservation journey, offering visitors an immersive cultural experience.
11. **India's Literary Milestone on the MOWCAP Register:** In a historic achievement, three of India's literary treasures- Ramcharitmanas, Panchatantra, and Sahrdayāloka-Locana- were inscribed into the 2024 Memory of the World Committee for Asia and the Pacific (MOWCAP) Regional Register.

CHALLENGES

1. **Natural Disasters & Climate Change:** Earthquakes, floods, and rising sea levels threaten structural integrity and ecosystems.
2. **Conflict & Vandalism:** Wars, insurgencies, and theft damage or destroy heritage sites and artefacts.
3. **Urbanisation & Encroachment:** Rapid development near sites leads to pollution, illegal construction, and visual degradation.
4. **Pollution: Air, water, and noise pollution erode monuments and disturb natural heritage areas (e.g., Taj Mahal).**
5. **Unregulated Tourism:** Overcrowding causes wear and tear, especially at fragile heritage spots like Ajanta-Ellora.
6. **Funding & Skill Shortage:** Many sites lack adequate financial support and trained conservation professionals.
7. **Poor Documentation:** Incomplete or outdated records hinder effective conservation and international recognition.
8. **Lack of Coordination:** Multiple agencies working in silos weaken heritage protection efforts and delay responses.

WAY FORWARD

1. **Disaster-Resilient Planning:** Integrate climate adaptation and disaster risk management into site conservation.
2. **Stronger Legal Protection:** Enforce stricter laws against encroachment, vandalism, and illegal construction.
3. **Sustainable Tourism:** Promote eco-friendly tourism with visitor limits, local guides, and awareness campaigns.
4. **Increased Funding:** Boost public and CSR-based investments for heritage maintenance and infrastructure.
5. **Skilled Manpower Development:** Train more heritage conservationists, archaeologists, and local caretakers.
6. **Technology Use:** Employ GIS, 3D mapping, drones, and AI for monitoring, restoration, and documentation.
7. **Community Involvement:** Engage local communities as stakeholders to ensure long-term protection and pride.
8. **Global Collaboration:** Strengthen ties with UNESCO, ICOMOS, and other countries to adopt global best practices.

CONCLUSION

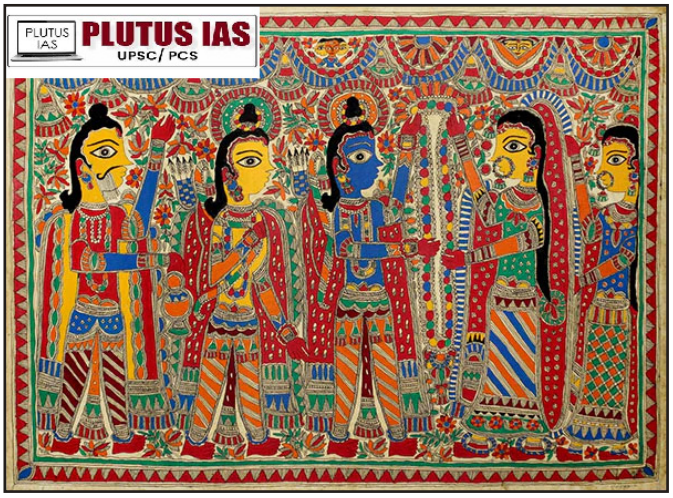
Preserving World Heritage Sites is not just about

protecting monuments; it is about safeguarding human history, cultural identity, and natural legacy for future generations. In the face of rising threats from disasters and conflicts, India must adopt inclusive, technology-driven, and community-led conservation models. Strengthening legal frameworks, global cooperation, and public awareness will ensure that heritage continues to educate, inspire, and unite humanity.

MADHUBANI PAINTING: A CULTURAL CANVAS FROM MITHILA.

WHY IN THE NEWS?

Bihar recently made headlines as two remarkable Guinness World Records were achieved in distinct categories—Madhubani painting and singing bowl ensemble performances by Buddhist monks. The records were officially recognized when Guinness World Records officials presented certificates to Chief Minister Nitish Kumar at the Patliputra Sports Complex in Patna. This achievement not only highlights the cultural richness of Bihar but also emphasizes its growing presence in the global arena of cultural heritage and artistic excellence.



ORIGIN OF MADHUBANI PAINTING

The origins of Madhubani painting are deeply rooted in the cultural traditions of the Mithila region. According to legend, King Janaka of Mithila commissioned artists to create paintings for his daughter Sita's wedding to Lord Rama, marking the inception of this art form. Initially, women from various communities practiced this art on the walls and floors of their homes during festivals, religious events, and significant life milestones like marriages and births. Over time, the art transitioned from walls to handmade paper and canvas, gaining wider recognition and appreciation.

FEATURES OF MADHUBANI PAINTING

1. **Use of Natural Dyes and Pigments:** Madhubani artists traditionally utilize natural dyes and pigments derived from plants and other organic sources. For example, black is obtained by mixing soot with cow dung, yellow from turmeric, blue from indigo, and red from the kusum flower. These natural colors not only provide vibrancy but also ensure the eco-friendly nature of the art.
2. **Intricate Geometric Patterns:** A hallmark of Madhubani painting is the use of intricate geometric patterns and borders. These patterns often consist of repeated motifs like circles, triangles, and lines, which add depth and complexity to the artwork. For instance, mandalas are commonly used to evoke love among newlyweds.
3. **Symbolic Representation:** Symbols play a significant role in Madhubani paintings, each carrying specific meanings. For example, fish symbolize fertility and prosperity, peacocks represent love and romance, and the sun and moon are depicted for their life-giving qualities. These symbols are deeply rooted in the cultural and religious beliefs of the region.
4. **Depiction of Mythological Themes:** Madhubani paintings often depict scenes from Hindu mythology, including stories of deities like Krishna, Rama, Shiva, Durga, Lakshmi, and Saraswati. These narratives are portrayed with rich symbolism and intricate detailing, reflecting the artists' devotion and storytelling prowess.
5. **Distinctive Human and Animal Figures:** The human and animal figures in Madhubani art are stylized and often feature exaggerated physical traits. For example, faces are shown in profile with prominent, bulging eyes painted frontally. Such distinctive features contribute to the unique aesthetic of the art form.

6. **No Empty Spaces:** A characteristic feature of Madhubani paintings is the complete absence of empty spaces. Artists fill gaps with motifs like flowers, animals, birds, and geometric patterns, ensuring that every inch of the canvas is adorned, which enhances the visual richness of the artwork.
7. **Double Line Borders with Intricate Fillings:** Figures and elements in Madhubani paintings are often outlined with double lines, and the space between these lines is filled with intricate patterns like cross-hatching or tiny lines. This technique adds depth and texture to the paintings, making them more engaging and detailed.

THEMES OF MADHUBANI PAINTING

1. **Religious and Mythological Narratives:** Madhubani paintings frequently depict scenes from Hindu epics like the Ramayana and Mahabharata. For instance, artists illustrate the wedding of Sita and Rama, the exploits of Lord Krishna, and tales of deities such as Shiva, Durga, Lakshmi, and Saraswati. These narratives are portrayed with intricate patterns and vibrant colors, reflecting the region's deep-rooted spiritual traditions.
2. **Nature and Celestial Bodies:** Nature holds a significant place in Madhubani art. Common motifs include the sun, moon, stars, rivers, and sacred plants like the tulsi. These elements symbolize life, fertility, and the harmonious relationship between humans and the environment.
3. **Love and Fertility:** Themes of love and fertility are central to Madhubani paintings. Artworks often depict couples, such as Radha and Krishna, surrounded by symbols like fish, lotus flowers, and bamboo groves, all representing prosperity and procreation. These paintings are traditionally created during weddings and other auspicious occasions.
4. **Social and Cultural Events:** Madhubani art captures various social and cultural events, including weddings, festivals, and daily village life. Scenes of rituals, dances, and communal gatherings are illustrated, providing a visual record of the community's customs and traditions.
5. **Flora and Fauna:** The depiction of animals and plants is prevalent in Madhubani paintings. Common subjects include elephants, peacocks, fish, and trees, each symbolizing different virtues like strength, beauty, and abundance. These elements are intricately woven into the artwork, showcasing the artists' reverence for nature.
6. **Tantric and Symbolic Imagery:** Some Madhubani paintings incorporate tantric symbols and motifs, representing spiritual concepts and practices. These artworks often feature geometric patterns, mandalas, and depictions of deities in meditative poses, reflecting the mystical aspects of the culture.
7. Dualism and Philosophical Concepts: Madhubani art explores philosophical themes like dualism, illustrating the balance between opposing forces such as day and night, life and death, or joy and sorrow. These concepts are expressed through contrasting colors, symmetrical designs, and symbolic representations, conveying deeper meanings within the artwork.

TECHNIQUE OF MADHUBANI PAINTING

1. **Surface Preparation:** Traditionally, walls or floors were coated with a mixture of mud and cow dung. Today, artists use handmade paper, canvas, or cloth as a base, sometimes treated for texture.
2. **Natural Color Usage:** Colors are made from natural sources—turmeric for yellow, indigo for blue, kusum flower for red, and soot mixed with cow dung for black.
3. **Drawing Tools:** Artists use twigs, bamboo sticks, matchsticks, brushes, and even their fingers or nib pens to draw and fill colors.
4. **Outline and Borders:** Figures are first outlined using fine lines, often double-lined, and then filled with color. The space between the double lines is filled with detailed motifs.
5. **No Empty Spaces:** A defining feature is the absence of blank space. Empty areas are filled with geometric patterns, flora, fauna, or symbolic motifs.

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6. **Symmetry and Balance:** Paintings maintain strong symmetry and balance. The compositions are well-aligned and often follow a central axis.
7. **Fine Detailing:** Cross-hatching, dots, and fine lines are used to add texture and detail, particularly in clothing, backgrounds, and borders.

RECENT EVOLUTION OF MADHUBANI PAINTING

1. **Shift from Walls to Commercial Mediums:** Traditionally practiced on mud walls and floors, Madhubani painting has now found expression on handmade paper, canvas, fabric, pottery, home décor, and apparel. This transition has made the art form more marketable and accessible to a global audience.Example: Artisans now produce Madhubani-printed sarees, stoles, cushion covers, and wall hangings for urban and international markets.
2. **Inclusion of Contemporary Themes:** Modern Madhubani artists are increasingly addressing current issues such as climate change, women's rights, and COVID-19 awareness. Example: Padma Shri awardee Dulari Devi created a series of paintings highlighting social distancing and mask-wearing during the pandemic.
3. **Rise of Women Artists as Cultural Ambassadors:** Once confined to rural homes, many women artists have gained national and international recognition. Their participation in exhibitions, collaborations with designers, and governmental awards have boosted the visibility of Madhubani art. Example: Women from Ranti and Jitwarpur villages have showcased their work in exhibitions in Japan, France, and the USA.
4. **Government and NGO Support:** Various initiatives by the Government of India and NGOs have helped in promoting and preserving Madhubani art. This includes skill development programs, GI tag recognition (2007), and support through the KVIC and TRIFED platforms. Example: The Government's "One District One Product" (ODOP) scheme promotes Madhubani art as a signature craft of Madhubani district.
5. **Digital and E-commerce Expansion:** Platforms like Amazon Karigar, Flipkart Samarth, and dedicated art portals like Gaatha, Okhai, and Memeraki have allowed Madhubani artists to sell their works directly to global customers. According to TRIFED, online sales of tribal arts (including Madhubani) have increased by over 60% between 2020 and 2023.
6. **Integration with Modern Design and Fashion:** Designers are integrating Madhubani motifs into modern fashion, jewelry, and interior design, making it popular among younger, urban audiences. Example: Fashion designer Anita Dongre has used Madhubani prints in her ethnic collection to fuse tradition with modernity.
7. **Madhubani in Public and Environmental Spaces:** In recent years, artists have painted railway stations, government offices, and public walls with Madhubani murals, combining cultural promotion with beautification efforts. Example: The Madhubani Railway Station in Bihar is decorated entirely in Madhubani murals and won acclaim as India's most artistic station in 2018.

CONCLUSION

Madhubani painting stands as a testament to the rich cultural heritage and artistic excellence of the Mithila region. Its distinctive features, symbolic depth, and thematic diversity have not only preserved traditional narratives but have also adapted to contemporary contexts. As it continues to evolve and gain global recognition, Madhubani painting remains a vibrant and enduring expression of India's folk art traditions. Today, it serves as both a livelihood source for rural artisans and a medium for cultural diplomacy. With growing support and innovation, its legacy is set to inspire future generations of artists worldwide.

PRELIMS QUESTIONS

1. **Which of the following statements about the World Heritage Convention is/are correct?**

   1. It was adopted by UNESCO in 1982.

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2. It covers both cultural and natural heritage
3. India became a signatory to the Convention in 1977.

Select the correct answer using the code below:

(a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

2. With reference to Madhubani painting, consider the following statements:

1. It is traditionally practiced in the Mithila region of Bihar.
2. Only synthetic paints are used to create these paintings.
3. It is known for its geometric patterns and mythological themes.

Which of the statements given above is/are correct?

(a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2, and 3

ANSWER-KEY

1. (b)	2. (b)

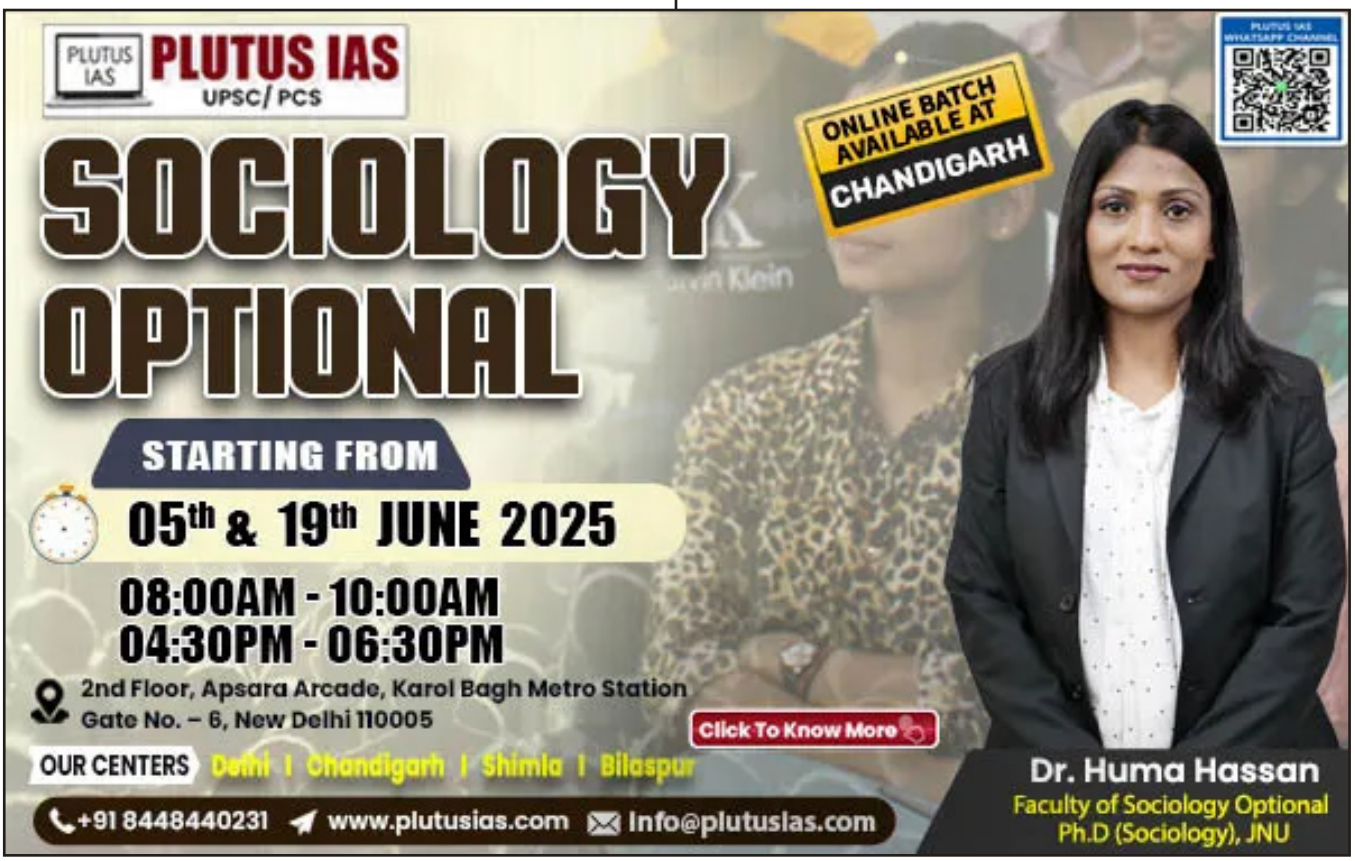
MAINS QUESTIONS

1. "World Heritage Sites are global treasures, but they face increasing threats from disasters, conflicts, and urban pressures." Discuss the major challenges in conserving World Heritage Sites in India and suggest a roadmap for their effective protection and promotion.

(250 words, 15 marks)

2. Discuss the historical origin, stylistic features, and thematic diversity of Madhubani painting. How has the art form evolved in the modern era?

(15 marks, 250 words)





CLOUDBURST DISASTERS: LESSONS IN PREPAREDNESS AND RESILIENCE

WHY IN THE NEWS?

On April 20, 2025, a severe cloudburst struck the Ramban tehsil of Jammu and Kashmir, leading to torrential rains, hailstorms, and strong winds. This sudden deluge caused flash floods and landslides, resulting in the tragic loss of at least three lives, including two children. Over 100 people were rescued, and approximately 40 houses were damaged in the Dharam Kund village. The Jammu-Srinagar National Highway was also blocked due to landslides, disrupting transportation and daily life inthe region.



WHAT IS CLOUDBRUST?

A cloudburst is an intense and localised burst of heavy rainfall, often accompanied by thunder and hail. It occurs when cumulonimbus clouds, which are filled with moisture, release their contents suddenly due to rapid changes in atmospheric conditions. It's likened to "a huge bucket of water being tipped over" due to the sudden release of accumulated rainwater.

CAUSES OF CLOUDBURST

1. **Orographic Lift (Mountain-Induced Rainfall):** Ramban, located in the Himalayan foothills, experiences orographic uplift, where moist air is forced to rise due to mountainous terrain. This cooling leads to rapid condensation and intense rainfall in a short span.
2. **Sudden Temperature Variation:** Unseasonal warming in early April caused an unusual surge in moisture-laden air. This warm air, when lifted, cooled rapidly, triggering a violent downpour characteristic of cloudbursts.
3. **High Moisture-Laden Winds from Western Disturbances:** A strong western disturbance over North India brought heavy moisture from the Mediterranean region, increasing the potential for intense, localised rainfall.
4. **Localised Convection:** Rapid heating of the Earth's surface in hilly areas like Ramban led to powerful upward convection currents, forming cumulonimbus clouds that eventually burst.
5. **Formation of Thunderclouds (Cumulonimbus Clouds):** The presence of tall, dense clouds capable of holding large amounts of water was observed in satellite data. These clouds release massive rainfall in a very short duration when destabilised.
6. **Climate Change & Extreme Weather Variability:** April is not typically prone to such extreme events. This early occurrence hints at broader climatic shifts, altering seasonal rainfall patterns and increasing the unpredictability of weather.
7. **Snowmelt Combined with Rainfall:** As seen in the Ramban incident, recent warming and light snow accumulation in the upper reaches melted rapidly, adding to runoff and amplifying flood risk alongside heavy rain.
8. **Lack of Vegetative Buffer and Urban Pressure:** Deforestation and construction in ecologically sensitive zones of J&K reduced natural drainage capacity, increasing vulnerability to runoff and landslides post-cloudburst.

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9. **Repeated Western Disturbances Without Intervals:** Back-to-back weather systems have been affecting North India in 2025, with little time for atmospheric stabilisation, making regions like Ramban prone to extreme precipitation.

CONSEQUENCES OF A CLOUDBURST

1. **Flash Floods:** Sudden, intense rainfall leads to the overflowing of rivers and streams within minutes. In Ramban, villages like Dharam Kund were inundated, triggering emergency rescues.
2. **Landslides and Soil Erosion:** Torrential rain loosens soil on mountain slopes, causing landslides that damage roads, homes, and farmlands. The Jammu-Srinagar Highway was blocked due to landslides post-event.
3. **Loss of Human Lives:** Cloudbursts often strike without warning, leaving people with little time to evacuate. In the April 2025 event, at least three people, including children, died.
4. **Damage to Infrastructure:** Bridges, roads, electricity lines, and communication networks are often destroyed. Ramban experienced road blockages and power disruptions.
5. **Livelihood Disruption:** Agriculture, animal husbandry, and small businesses suffer losses due to crop damage, loss of livestock, and washed-away property.
6. **Displacement and Homelessness:** Families living near rivers or hillsides are forced to evacuate, often losing their homes. Over 40 houses were damaged in the recent J&K cloudburst.
7. **Water Contamination and Health Hazards:** Sewage and debris mix with drinking water sources, increasing the risk of waterborne diseases post-event.
8. **Disruption in Transportation and Connectivity:** Highways and rural roads get cut off, delaying rescue efforts and disrupting supply chains—Jammu-Srinagar Highway being a key example.
9. **Psychological Impact and Trauma:** Sudden destruction causes long-term mental health issues among survivors, especially children and elderly, due to the fear and loss experienced

NDMA GUIDELINE ON THE CLOUDBRUST

1. **Landslide Risk Management Strategy (2009):** Focuses on monitoring and early warning systems for areas prone to landslides, which can be triggered by cloudbursts, ensuring better preparedness.
2. **Management of Floods (2008):** Stresses the importance of preparing Flood Management Plans (FMPs) to address flash floods caused by cloudbursts, ensuring effective responses.
3. **Urban Flooding Management (2010):** Provides guidelines for managing urban flooding worsened by cloudbursts, including urban planning, drainage systems, and community preparedness.
4. **National Disaster Management Plan (NDMP) 2019:** Offers a comprehensive disaster management framework, highlighting integrated planning, capacity building, and community involvement to address cloudburst-related risks.
5. **Afforestation and Soil Conservation:** Emphasises the need for afforestation and soil conservation in vulnerable catchment areas to reduce runoff and prevent landslides after cloudbursts.
6. **Improved Infrastructure Resilience:** Encourages the construction of flood-resistant infrastructure such as drainage systems, flood barriers, and resilient buildings in areas at high risk of cloudbursts.

CLOUDBURST MEASURES AND MITIGATIONS

1. **Early Warning Systems (EWS):** Deploy Doppler radars, weather satellites, and real-time data analysis tools to detect intense rainfall and issue timely warnings to vulnerable regions.
2. **Improved Weather Forecasting:** Enhance the capabilities of agencies like IMD (India Meteorological Department) to provide localised and accurate forecasts using high-resolution models.
3. **Disaster-Resilient Infrastructure:** Construct buildings, roads, and drainage systems that can withstand flash floods and heavy rainfall, particularly in hilly and urban areas.
4. **Afforestation and Catchment Area Treatment:** Promote afforestation and soil conservation in upper catchment areas to reduce surface runoff and improve water absorption.

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5. **Community Awareness and Training:** Conduct public awareness campaigns and mock drills to prepare local communities for emergency response during cloudburst-induced floods.
6. **Zoning and Land Use Planning:** Avoid construction in flood-prone and landslide-prone areas by enforcing stricter land use regulations and urban planning norms.
7. **Rainwater Harvesting and Water Management:** Implement decentralised rainwater harvesting systems to reduce waterlogging and mitigate the sudden surge in surface runoff.
8. **Emergency Response and Relief Mechanism:** Strengthen the capacity of local disaster management authorities with trained personnel, rescue equipment, and rapid response teams.

CONCLUSION

The recent cloudburst in Ramban, Jammu and Kashmir, is a stark reminder of the increasing frequency and intensity of extreme weather events driven by climate change and ecological imbalances. The loss of lives, damage to infrastructure, and displacement of communities highlight the urgent need for a robust disaster preparedness and climate-resilient development framework. While cloudbursts cannot be prevented, their impacts can be significantly reduced through science-based early warning systems, sustainable land use planning, ecosystem restoration, and community-centric disaster management strategies. Integrating NDMA guidelines with local action plans, strengthening weather forecasting systems, and promoting environmental stewardship are essential to safeguard lives and livelihoods.

STRENGTHENING BRICS COOPERATION FOR A SUSTAINABLE FUTURE

WHY IN THE NEWS?

India has called on the BRICS group to unite behind the "Baku to Belem Roadmap" to mobilize $1.3 trillion annually by 2035 for climate action goals. At the 11th BRICS Environment Ministers' Meeting in Brasilia, India emphasized the need for stronger climate financing mechanisms and urged developed nations to fulfill their commitments. Highlighting shared environmental challenges like desertification and biodiversity loss, India called for collective action within BRICS. India also reiterated its leadership in conservation through initiatives like the International Big Cat Alliance, positioning itself as a key advocate for global climate governance at forums like COP30.



BRICS & GOVERNANCE:

BRICS, representing Brazil, Russia, India, China, and South Africa, is an influential economic and political bloc with growing significance in the global arena. These nations represent over 40% of the world's population and nearly 25% of global GDP. Their governance model, characterized by mutual respect, cooperation, and the pursuit of common goals, aims to tackle key global challenges. BRICS has grown in prominence in the context of addressing economic disparities, geopolitical tensions, and environmental crises like climate change.

BRICS 2 MEETING: A MILESTONE IN COOPERATION

1. **Purpose and Significance:** The BRICS 2 meeting, held in [insert year], marked a pivotal point in strengthening cooperation between these emerging markets. The bloc continued to promote a collective vision for a multi-polar world order, asserting its relevance in a rapidly changing global landscape.
2. **Key Objectives:** The primary goal of the BRICS 2 meeting was to enhance economic collaboration, improve trade, and tackle global issues like climate change and sustainable development. Leaders emphasized the need for better coordination and shared investments across the BRICS nations.

3. **Reaffirmation of Core Principles:** The meeting reaffirmed the founding principles of BRICS—sovereignty, equality, and non-interference in the domestic affairs of member countries. This approach reflects BRICS' desire to challenge the dominance of Western powers in global governance.
4. **Economic Development Focus:** One of the key topics discussed was economic resilience in the face of global uncertainties. The BRICS nations recognized the need for increased trade within the bloc and the importance of mutual investment in infrastructure development.
5. **Geopolitical Context:** The BRICS 2 meeting underscored the rise of multipolarity and how the bloc can contribute to maintaining global peace and stability. The members recognized the growing importance of South-South cooperation in maintaining peace.
6. **Climate Change Agenda:** The BRICS countries agreed to promote clean energy and implement climate-resilient practices. In 2021, Brazil, Russia, India, China, and South Africa collectively accounted for over 40% of global carbon dioxide emissions, making their cooperation essential in addressing climate change.
7. **Expansion of BRICS:** BRICS also discussed the possibility of expanding the group to include more nations, particularly those from the Global South, in a bid to increase the representation of developing countries in global decision-making forums.

KEY HIGHLIGHTS OF THE MEETING

1. **Strengthened Economic Ties:** BRICS members agreed to increase intra-BRICS trade. The bloc's collective share of global trade reached $6.5 trillion in 2020, which constitutes about 16% of world trade. Efforts were made to enhance cooperation in infrastructure, finance, and trade.
2. **Sustainability and Green Energy:** One of the major outcomes was a commitment to accelerate the transition to green energy. The BRICS nations pledged to reduce their collective carbon footprint and invest in renewable energy sources such as wind, solar, and hydropower. China, for instance, has become a leader in solar energy, investing over $100 billion in clean energy projects in 2020 alone.
3. **Addressing Global Inequality:** The BRICS meeting reaffirmed the commitment to combat poverty and inequality. The group's New Development Bank (NDB), which has lent more than $30 billion to various projects across member countries, plays a crucial role in financing projects aimed at reducing inequality.
4. **Strengthened Political Dialogue:** The BRICS bloc emphasized that dialogue, not confrontation, is key to solving global political issues. The countries are committed to fostering peace and security, particularly in areas like the Middle East and Africa.
5. **COVID-19 Recovery:** In response to the COVID-19 pandemic, BRICS countries committed to an equitable distribution of vaccines, with India playing a pivotal role in vaccine production. India, for instance, has provided more than 60 million COVID-19 vaccine doses to over 70 countries through its "Vaccine Maitri" initiative.
6. **Digital Economy and Innovation:** With a focus on technology, the BRICS nations agreed to work together on digital infrastructure, cybersecurity, and fintech. China's role in e-commerce, particularly with companies like Alibaba, was recognized as a key driver for economic growth in the region.
7. **Crisis Response Mechanisms:** The BRICS 2 meeting also discussed strengthening emergency response mechanisms for unforeseen global events, such as pandemics and natural disasters. The BRICS Contingent Reserve Arrangement (CRA), established in 2015, has already provided valuable financial assistance to member countries in times of economic stress.

INDIA'S LEADERSHIP ROLE AT BRICS MEETING

1. **Championing Economic Cooperation:** India's leadership at the BRICS meeting has been pivotal in advocating for better economic cooperation, particularly in enhancing trade between BRICS members. India's trade with other BRICS countries has grown significantly, reaching $100 billion in 2020.

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2. **Sustainability Advocate:** India pushed for greater attention to sustainable development. As one of the largest polluters globally, India is committed to achieving net-zero emissions by 2070. India has also undertaken large-scale renewable energy projects, such as the International Solar Alliance (ISA).
3. **Promoting Inclusivity:** India highlighted the importance of an inclusive global order, emphasizing that developing nations must have more say in global decision-making. This is reflected in India's consistent support for reforming the United Nations Security Council (UNSC).
4. **Strengthening Global South Collaboration:** India played a crucial role in enhancing ties between BRICS and other developing nations. India's commitment to South-South cooperation is evident in its leadership of initiatives like the Indian Technical and Economic Cooperation (ITEC) program, which has benefited over 150 countries.
5. **Countering Geopolitical Tensions:** India used its leadership position to call for peaceful resolutions to conflicts, particularly in the Indo-Pacific region. India has long advocated for a "free, open, and inclusive Indo-Pacific" through regional dialogue mechanisms such as the Quad.
6. **Innovation and Digital Economy:** India emphasized the importance of technology and innovation in driving economic growth. The Digital India initiative, which aims to empower citizens through technology, was highlighted as a model for other BRICS countries.
7. **Crisis Management:** India called for stronger collective action in times of crises. Its role in providing COVID-19 vaccines globally through the "Vaccine Maitri" initiative was particularly highlighted during the BRICS meeting

GLOBAL CLIMATE GOVERNANCE & BRICS ROLE

1. **Collective Climate Action:** The BRICS nations, accounting for over 40% of global carbon emissions, acknowledged their shared responsibility in combating climate change. Their collective efforts are crucial in achieving global climate goals such as those set under the Paris Agreement.
2. **Investment in Green Technologies:** The BRICS countries agreed to boost investments in clean energy and green technologies. China's leadership in solar energy production and Brazil's vast hydroelectric potential were cited as important examples of the group's efforts to transition to greener energy systems.
3. **Sustainable Development Goals (SDGs):** BRICS reaffirmed its commitment to the UN's SDGs, particularly Goal 13 on climate action. They have pledged to integrate climate change mitigation into their national development plans and policies.
4. **Climate Financing:** The New Development Bank (NDB), established by BRICS, plays a key role in climate financing. In 2021, the NDB announced its intention to provide $5 billion in funding for renewable energy projects across BRICS countries and other developing nations.
5. **Support for Developing Countries:** BRICS countries have committed to supporting climate adaptation and mitigation in the Global South, where the impact of climate change is most severe. The NDB has already provided significant loans to projects aimed at enhancing climate resilience in Africa and Latin America.
6. **Regional Climate Initiatives:** The BRICS nations have promoted regional cooperation to address climate impacts. For example, India and South Africa have collaborated on water management projects to combat droughts and floods in their respective regions.
7. **Policy Alignment:** BRICS leaders agreed to align their national climate policies with international frameworks, such as the Paris Agreement, to ensure coordinated action and maximize the impact of their efforts.

CHALLENGES TO MITIGATE GLOBAL WARMING

1. **Resource Constraints:** Many BRICS countries face budget constraints, limiting their ability to invest in large-scale climate projects. For example, Brazil has struggled to balance deforestation efforts with the economic needs of its agribusiness sector.

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2. **Political Will:** Political instability in some BRICS countries, such as Brazil's fluctuating stance on environmental policies, makes it difficult to implement long-term climate strategies.
3. **Balancing Economic Growth and Sustainability:** The need for rapid economic growth in many BRICS nations often conflicts with the long-term goals of environmental sustainability. For instance, China's reliance on coal for energy production poses a challenge in meeting carbon reduction targets.
4. **Climate Adaptation Needs:** The BRICS nations, especially those in Africa and South Asia, face significant challenges in adapting to the impacts of climate change. Rising sea levels in Bangladesh and extreme weather events in South Africa are just some examples.
5. **Global Cooperation:** Despite the best efforts of BRICS, global cooperation on climate change remains fragmented. The reluctance of some developed nations to commit to climate financing is a major hurdle.
6. **Technological Gaps:** While BRICS countries are making strides in green technologies, there are still significant gaps in areas like energy storage, carbon capture, and low-carbon manufacturing processes.
7. **Short-term vs Long-term Goals:** Many BRICS nations prioritize short-term development goals over long-term climate objectives, leading to delays in the implementation of critical climate action plans.

WAY FORWARD

1. **Strengthen Green Financing:** BRICS should increase green investments, particularly through the New Development Bank (NDB). In 2020, the NDB issued its first green bond, raising $1.25 billion for clean energy projects.
2. **Increase Technological Cooperation:** By fostering greater technological collaboration, BRICS can bridge the gap in clean technologies and scale up renewable energy projects.
3. **Enhanced Global Dialogue:** BRICS should continue advocating for the inclusion of the Global South in global climate negotiations to ensure that the needs of developing nations are met.
4. **Local Action and Policy Implementation:** BRICS countries must implement more stringent climate policies at the national level, such as carbon taxes, to incentivize green innovation and reduce emissions.
5. **Public Awareness and Education:** Promoting sustainability and climate action at the grassroots level through public education campaigns will be essential to achieving long-term climate goals.
6. **Regional Cooperation:** BRICS must enhance regional cooperation, particularly in climate adaptation, by sharing knowledge and resources on mitigating climate risks in vulnerable areas.
7. **Promote Circular Economy:** A shift towards a circular economy, which prioritizes reducing waste and reusing materials, can significantly contribute to climate mitigation. BRICS nations should champion this approach in their industrial sectors.

CONCLUSION

The BRICS nations hold a crucial role in global governance, particularly in addressing global challenges like climate change. Through cooperative efforts, the BRICS bloc has the potential to drive meaningful progress in sustainable development, green energy transitions, and climate action. However, this requires enhanced financial commitment, stronger multilateral collaboration, and the fulfillment of existing climate financing promises, particularly by developed nations. The group's shared responsibility in tackling environmental issues like desertification, biodiversity loss, and pollution can pave the way for innovative solutions and collective action. Ultimately, BRICS has the opportunity to lead the way in forging a resilient, sustainable, and equitable global future

FOOD VS FUEL: THE ETHANOL BLENDING DILEMMA

WHY IN THE NEWS?

India has achieved its ethanol-blending target of 20% in petrol ahead of the 2025 deadline and is now aiming to raise the target to 30% to reduce fossil fuel dependence. However, this push comes amid a decline in sugarcane production since 2022,

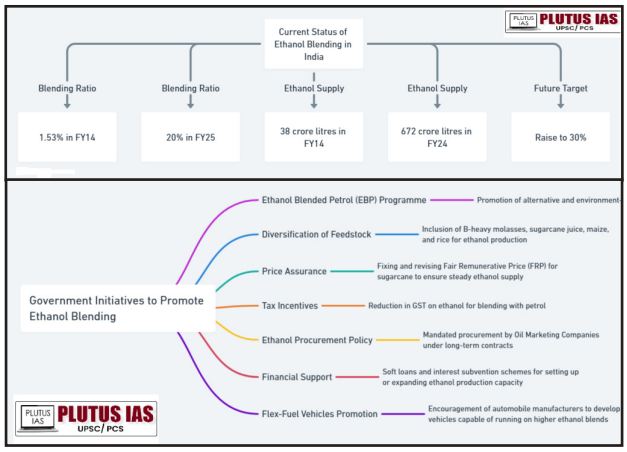
leading to increased diversion of sugar for ethanol production. To support farmers, the government recently approved a hike in the Fair Remunerative Price (FRP) for sugarcane. This shift has contributed to a rise in retail sugar prices, raising concerns about its availability for direct consumption and its impact on consumers.



WHAT IS ETHANOL BLENDING?

Ethanol blending refers to mixing ethanol, a biofuel made from plant-based sources like sugarcane molasses, maize, and rice, with petrol to create a cleaner-burning fuel. This process reduces India's dependence on fossil fuels, lowers carbon emissions, and enhances energy security. The Government of India launched the Ethanol Blended Petrol (EBP) Programme in 2003, aiming initially for 10% blending by 2022, which was achieved ahead of schedule. As of 2024, ethanol blending stands at around 15%, with a target to reach 20% (E20) by 2025. Ethanol production capacity has more than doubled in recent years, reaching over 1,600 crore litres in 2024, supporting this ambitious goal. This initiative has saved over ₹1 lakh crore in foreign exchange and reduced CO2 emissions by 544 lakh metric tons, while also boosting farmers' incomes and rural economies.

THE STATUS OF ETHANOL BLENDING AND THE GOVERNMENT INITIATIVES



WHY NUDGE FOR ETHANOL BLENDING

1. **Energy Security and Import Reduction:** India is heavily dependent on crude oil imports (over 85% of its needs). Ethanol blending helps reduce this dependency, saving valuable foreign exchange.
2. **Environmental Sustainability:** Ethanol is a clean-burning biofuel that reduces greenhouse gas emissions and air pollutants. It supports India's commitments under the Paris Agreement and its net-zero targets.
3. **Utilisation of Agricultural Surplus:** It provides a productive use for excess sugarcane, grains, and other feedstocks.Prevents wastage and supports price stabilisation in the agricultural sector.
4. **Doubling Farmers' Income:** Ethanol production offers an additional revenue stream to farmers through higher Fair Remunerative Prices (FRP) for sugarcane. Reduces over-reliance on traditional crop markets and mitigates distress sales.
5. **Promotion of Circular Economy:** Utilises agricultural by-products like B-heavy molasses and damaged grains for fuel production. Encourages sustainable resource use and waste-to-energy models.
6. **Industrial and Rural Development:** The Establishment of ethanol plants creates jobs and boosts the rural economy. Attracts investment in the agro-processing and renewable energy sectors.
7. **Global Commitments and Blending Targets:** India has committed to achieving 30% ethanol blending by the early 2030s. Accelerated targets (20% by 2025 achieved ahead of time) reflect this urgency

ETHANOL BLENDING IS A THREAT TO FOOD SECURITY

1. **Diversion of Food Crops:** Sugarcane, maize, and broken rice are increasingly used for ethanol, reducing availability for consumption.
2. **Rising Prices:** Sugar prices rose from ₹40/kg (May 2022) to ₹45/kg (May 2025) due to higher diversion for ethanol.

3. **Declining Output:** Sugarcane production fell from 490 crore tonnes (FY23) to 435 crore tonnes (FY25), tightening supply.
4. **Policy-Induced Shifts:** Incentives like higher FRP push farmers to grow ethanol crops over food crops, affecting food diversity.
5. **Impact on the Poor:** Diverting grains affects PDS and nutrition for the vulnerable, worsening food insecurity.
6. **Resource Strain:** Water-intensive crops like sugarcane add to water stress, impacting sustainable agriculture.
7. **Global Concerns:** FAO warns that excessive biofuel use can deepen food crises in developing nations.

BALANCING FOOD VS FUEL SECURITY

Aspect	Food Security Concerns	Fuel Security Benefits
Land Use	✧ Ethanol production requires large farmland, equal to Bihar's cropped area, reducing land for food crops.	✧ Helps reduce dependence on imported fossil fuels by using domestic crops for ethanol.
Feedstock	✧ Uses food grains like sugarcane, maize, and rice, diverting them from the food supply.	✧ Promotes the use of surplus/damaged grains, molasses, and agricultural residues for ethanol.
Impact on Food Prices	✧ Diversion of food crops for ethanol raises food prices, affecting affordability for consumers.	✧ Reduces fuel import bills (saving ₹1 lakh+ crore), which stabilises energy and inflationary pressures.
Water Usage	✧ Crops like sugarcane and paddy are highly water-intensive, straining groundwater.	✧ Encourages a shift to less water-intensive crops like maize and sorghum.
Production Capacity	✧ Declining sugarcane production (due to diseases and climate) affects the food and ethanol supply balance.	✧ Ethanol production capacity doubled to 1,600+ crore litres (2024), supporting 20% blending target.
Environmental Impact	✧ Overuse of food crops may lead to unsustainable farming and environmental degradation.	✧ Ethanol blending cuts CO_2 emissions by 544+ lakh metric tons, supporting India's climate commitments.

CONCLUSION

India's push for higher ethanol blending aims to improve energy security and reduce carbon emissions, while boosting rural development. However, increasing ethanol production raises food security concerns as crops like sugarcane, maize, and rice are diverted for fuel, driving up food prices and affecting availability. To balance food and fuel security, the government needs to ensure efficient use of agricultural resources, promote less water-intensive crops, and protect vulnerable populations from rising food costs. By adopting sustainable farming practices, India can achieve its clean energy goals without compromising food security.

FLASH FLOODS DEVASTATE SOMALIA: 17 LIVES LOST

WHY IN THE NEWS?

In Somalia, at least 17 people have been killed and more than 84,000 others displaced due to flash floods following torrential rains across the country since mid-April. The UN Office for the Coordination of Humanitarian Affairs said an assessment conducted by disaster management officials has revealed extensive damage to infrastructure and an urgent need for assistance to affected people. The UN agency said the Somali government has formed a committee that includes federal ministers and regional officials to respond to the flooding crisis. Somalia, a country with nearly two-thirds of the population that depends on agriculture for their livelihoods, has experienced extreme climate shocks in the past, including prolonged dry seasons causing drought and heavy rains leading to flooding.

WHAT IS A FLASH FLOOD?

A flash flood is a sudden and intense flood that occurs within a short period, typically within six hours of heavy rainfall or the sudden release of water, such as from a dam break or glacier melt. It is characterized by a rapid rise in water levels, which can quickly overwhelm rivers, streams, and dry areas. Flash floods are especially dangerous because they occur with little warning and can sweep away people, vehicles, and structures. They are more common in arid or hilly regions where the ground cannot absorb water quickly. Poor drainage systems and deforestation can also worsen their impact. Due to their speed and unpredictability, flash floods pose serious risks to life and property.



NDMA GUIDELINE

1. **Early Warning Systems:** Implementing robust forecasting and real-time monitoring systems to provide timely alerts to communities at risk.
2. **Community Awareness and Preparedness:** Educating the public about flood risks and promoting community-based disaster preparedness plans.
3. **Infrastructure Resilience:** Ensuring that critical infrastructure, such as dams and levees, are designed and maintained to withstand extreme flood events.
4. **Land Use Planning:** Regulating development in flood-prone areas to minimize exposure and vulnerability.
5. **Emergency Response Planning:** Developing and regularly updating emergency response plans, including evacuation routes and shelters.

REASON FOR FLASH FLOOD

1. **Intense or Prolonged Rainfall:** Sudden, heavy downpours in a short period can overwhelm soil absorption and drainage capacity, triggering flash floods.
2. **Cloudbursts:** A cloudburst is a sudden, very heavy rainfall event over a localised area, which can dump large volumes of rain in a matter of minutes.
3. **Topography and Terrain:** Steep, hilly, or mountainous regions accelerate water runoff, making these areas more prone to flash floods.
4. **Poor Drainage Systems:** Urban areas with inadequate or clogged drainage are highly vulnerable, as water cannot flow away quickly.
5. **Dam or Glacier Lake Outbursts:** Sudden releases of water from breached dams or melting glacial lakes (GLOFs) can cause catastrophic flash floods downstream.
6. **Deforestation and Land Use Changes:** Reduced vegetation cover leads to decreased soil absorption, increasing surface runoff and flood risk.
7. **Climate Change:** Changing weather patterns have led to an increase in extreme rainfall events, contributing to the frequency and severity of flash floods.

CONSEQUENCES OF INDIA'S VULNERABILITY TO FLASH FLOODS

1. **Loss of Life and Livelihoods:** Flash floods often strike with little warning, leading to significant casualties and displacement, especially in vulnerable rural and urban communities.
2. **Damage to Infrastructure:** Roads, bridges, railways, power lines, and water supply systems are frequently damaged or destroyed, disrupting connectivity and essential services.
3. **Agricultural Losses:** Farmlands are inundated, destroying standing crops, livestock, and stored grains, leading to food insecurity and financial distress for farmers.
4. **Urban Flooding and Health Hazards:** In cities, clogged drains and poor urban planning worsen flash flood impacts, increasing the spread of waterborne diseases and contamination of drinking water.
5. **Environmental Degradation:** Floodwaters erode soil, degrade riverbanks, and disturb ecosystems. Siltation and debris also damage aquatic habitats and wetlands.
6. **Economic Burden:** The cumulative damage leads to high economic costs due to loss of productivity, reconstruction, relief measures, and insurance claims.
7. **Displacement and Migration:** Frequent flooding events force temporary or permanent displacement, straining urban resources and increasing vulnerability in relief camps or resettlement areas.

IMPACT OF FLASH FLOODS IN INDIA

1. **Human Casualties and Displacement:** Flash floods often occur without warning, leading to loss of lives and large-scale displacement. Vulnerable groups, such as those living in low-lying or poorly constructed housing, are at the greatest risk.
2. **Damage to Infrastructure:** Critical infrastructure such as roads, bridges, railways, power lines, and dams is frequently damaged or destroyed. This not only incurs huge repair costs but also disrupts transportation, communication, and electricity supply.
3. **Agricultural Loss:** Flash floods wash away standing crops, erode fertile topsoil, and damage irrigation infrastructure. This leads to food shortages, rural distress, and long-term income loss for farmers.
4. **Urban Flooding:** In cities, poor drainage systems and unplanned construction exacerbate the effects of flash floods. Waterlogging, property damage, and traffic disruptions become common, especially in metros like Mumbai, Chennai, and Delhi.
5. **Public Health Risks:** Stagnant water from floods creates breeding grounds for mosquitoes and spreads waterborne diseases like cholera, dengue, and leptospirosis. Contaminated water sources pose severe health risks.
6. **Environmental Damage:** Floods cause soil erosion, loss of biodiversity, and degradation of riverbanks and wetlands. They also carry industrial and domestic waste into water bodies, polluting ecosystems.
7. **Economic Loss:** The combined effect of infrastructure damage, agricultural losses, and relief operations puts a strain on public finances and slows down regional economic growth.

CONCLUSION

Flash floods are among the most dangerous and rapidly occurring natural disasters, posing a significant threat to both life and property. The recent devastation in Somalia highlights the urgent need for global attention to climate-induced disasters. In India, frequent flash floods caused by erratic rainfall, unplanned urbanisation, deforestation, and climate change have had profound human, economic, and environmental impacts. While the NDMA guidelines offer a strong framework for disaster preparedness and response, their effective implementation at local levels remains crucial. Strengthening early warning systems, community awareness, sustainable development, and climate resilience strategies will be key to reducing the vulnerability and enhancing the adaptive capacity of flood-prone regions.

PRELIMS QUESTIONS

1. Which of the following conditions are conducive to the occurrence of a cloudburst?

1. Presence of Cumulonimbus clouds
2. Rapid cooling of moisture-laden air
3. High-pressure atmospheric conditions
4. Orographic uplift in mountainous regions

Select the correct answer using the code below:

(a) 1, 2, and 3 only (b) 1, 2, and 4 only
(c) 1, 3, and 4 only (d) All of the above

2. Which global initiative was mentioned by India to highlight its leadership in conservation?

(a) International Solar Alliance
(b) International Big Cat Alliance
(c) Green Climate Fund
(d) Clean Energy Partnership

3. Consider the following statements:

1. Ethanol blending in India helps reduce dependency on fossil fuels.
2. The target for ethanol blending in India is to reach 30% by 2025.
3. Sugarcane is the only crop used for ethanol production in India.

How many of the statements given above are correct?

(a) Only one (b) Only two
(c) All three (d) None

4. With reference to flash floods, consider the following statements:

1. Flash floods usually occur within six hours of intense rainfall.
2. Deforestation has no direct impact on the frequency of flash floods.
3. Poor urban drainage systems can worsen the effects of flash floods.
4. Flash floods are more common in flat plains than hilly areas.

Which of the statements given above is/are correct?

(a) 1 and 3 only (b) 2 and 4 only
(c) 1, 3, and 4 (d) 1, 2, and 3

ANSWER-KEY

1. (b)	2. (b)	3. (a)	4. (a)

MAINS QUESTIONS

1. Discuss the causes and consequences of cloudbursts in India. Suggest a multi-dimensional mitigation strategy in line with the NDMA guidelines.

(250 words, 15 marks)

2. Evaluate India's leadership in advocating for enhanced climate financing mechanisms within BRICS. How can developing nations benefit from a united BRICS approach to climate action?

(250 words, 15 marks)

3. Discuss the challenges and benefits of ethanol blending in India, focusing on its impact on energy security, agriculture, and food security.

(250 words, 15 marks)

4. Flash floods are becoming increasingly frequent and destructive in India due to climatic and anthropogenic factors. Discuss the causes and consequences of flash floods in India.

(250 words, 15 marks)





MOSQUITO MENACE TO MALARIA-FREE MISSION

WHY IN THE NEWS?

India's significant progress in malaria control was highlighted at the Asia Pacific Leaders' Conclave on Malaria Elimination, where Union Health Minister Dr. Mansukh Mandaviya announced that India is the only high-burden, high-impact country in the South-East Asia Region to report a decline in malaria cases in 2020 compared to 2019. Between 2015 and 2022, India witnessed an 85.1% decline in malaria cases and an 83.36% decline in malaria-related deaths, showcasing its strong commitment to malaria elimination. The conclave was attended by health leaders from multiple Asia-Pacific countries and WHO-SEARO representatives, underscoring the importance of regional cooperation in combating malaria.



WHAT IS MALARIA?

Malaria is a life-threatening disease caused by *Plasmodium* parasites, transmitted to humans through bites of infected female *Anopheles* mosquitoes. It is prevalent in tropical and subtropical regions and is both preventable and curable. In 2023, there were 263 million malaria cases and 597,000 deaths globally, with the WHO African Region accounting for 94% of cases and 95% of deaths. Children under five are the most vulnerable, making up 76% of malaria deaths. Symptoms range from fever and chills to severe complications like seizures and breathing difficulty. WHO recommends vaccines like RTS, S/AS01 and R21/Matrix-M for children in high-risk areas. Prevention includes using bed nets, indoor spraying, and antimalarial medicines.

CAUSES OF MALARIA

1. **Plasmodium Parasites:** Malaria is caused by infection with Plasmodium parasites—mainly P. falciparum (most deadly) and P. vivax (most widespread outside Africa).
2. **Mosquito Bites:** The disease spreads through bites of infected female Anopheles mosquitoes, primarily active during dusk and dawn.
3. **Contaminated Blood Transfusions:** Malaria can also be transmitted through the transfusion of infected blood, though this is rare.
4. **Shared Needles:** Using syringes or needles contaminated with infected blood can spread malaria.
5. **Mother to Child:** In rare cases, malaria can be transmitted from a pregnant woman to her baby before or during delivery (congenital malaria).
6. **Parasite Lifecycle:** Once inside the body, parasites travel to the liver, mature, and then infect red blood cells, causing symptoms.
7. **Environmental Factors:** Stagnant water bodies, poor sanitation, and high humidity create ideal breeding grounds for mosquitoes.
8. **Travel to Endemic Areas:** People travelling to or living in malaria-prone regions without preventive measures are at higher risk.

ANOPHELES MOSQUITO

The *Anopheles* mosquito is the primary vector responsible for transmitting malaria to humans. Only female *Anopheles* mosquitoes can transmit the *Plasmodium* parasites, as they require blood meals to develop their eggs. These mosquitoes are most active during dusk and dawn and breed in clean, stagnant water sources such as ponds, rice fields, and water storage containers. There are over 400 species of *Anopheles*, but around 30 are considered major malaria vectors worldwide. One significant species, *Anopheles stephensi*, originally native to South Asia, is now spreading in urban areas of Africa, posing new challenges to malaria control. *Anopheles* mosquitoes are also becoming increasingly resistant to common insecticides, making vector control efforts more difficult. Understanding their behaviour and breeding patterns is crucial for implementing effective prevention strategies such as insecticide-treated nets, indoor residual spraying, and larval source management.

SIGNS AND SYMPTOMS

Prevention	Cure
Mosquito Bite Protection:	✧ **Artemisinin-based Combination Therapies (ACTs):** Most effective for P. falciparum malaria.
✧ **Insecticide-treated nets (ITNs):** Reduces mosquito bites while sleeping.	✧ **Chloroquine:** Effective for P. vivax malaria in areas with no resistance.
✧ **Mosquito repellents (DEET-based):** Apply on skin/clothing after dusk to repel mosquitoes.	✧ **Primaquine:** Eliminates liver stages of P. vivax and P. ovale to prevent relapses.
✧ **Protective clothing:** Long sleeves/trousers reduce exposure.	✧ **Supportive Care:** IV treatment, fluid management, and blood transfusions for severe cases.
✧ **Indoor residual spraying (IRS):** Spraying insecticides inside homes kills mosquitoes.	✧ **Early Diagnosis & Treatment:** Use rapid diagnostic tests (RDTs) or microscopy for prompt diagnosis.
Environmental Control:	✧ Timely treatment with antimalarial drugs prevents complications and reduces transmission.
✧ **Larval source management:** Eliminate or treat breeding sites (stagnant water).	
✧ **Window screens/mesh:** Prevent mosquitoes from entering homes.	
Vaccination:	
✧ RTS,S/AS01 and R21/Matrix-M vaccines reduce malaria cases, especially in children in endemic areas.	

SIGNS AND SYMPTOMS

Malaria symptoms typically begin 10–15 days after the bite of an infected Anopheles mosquito. Early detection is crucial, as malaria can rapidly progress to severe illness and death, especially in high-risk groups such as children under 5, pregnant women, and people with weakened immunity.

COMMON EARLY SYMPTOMS:

1. Fever
2. Chills and shivering

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3. Headache4. Muscle aches and fatigue
5. Nausea and vomiting

SEVERE SYMPTOMS (LIFE-THREATENING STAGE):

1. Severe fatigue and weakness
2. Impaired consciousness or coma
3. Multiple convulsions
4. Difficulty in breathing
5. Jaundice (yellowing of skin and eyes)
6. Dark or bloody urine
7. Abnormal bleeding and low blood pressure According to the WHO World Malaria Report 2023, 76% of all malaria deaths in the African Region were among children under five, highlighting the risk of rapid disease progression in vulnerable groups. P. falciparum, the most dangerous malaria parasite, can cause severe symptoms and death within 24 hours if untreated.

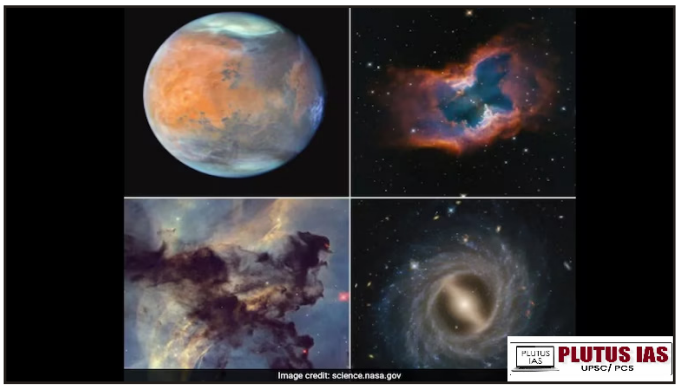
CONCLUSION

Malaria remains a significant global health threat, especially in tropical and subtropical regions, but India has made notable strides in reducing its malaria burden. With a remarkable 85.1% decline in cases and an 83.36% reduction in related deaths from 2015 to 2022, India stands as a leader in malaria control in the Southeast Asia region. Efforts like the Asia Pacific Leaders' Conclave on Malaria Elimination underline the importance of regional collaboration. Although progress is being made, malaria continues to affect millions, with children under five being the most vulnerable group. Early diagnosis, preventive measures like insecticide-treated nets, and vaccines such as RTS,S/AS01 and R21/Matrix-M, along with effective treatments like ACTs, are critical in combating the disease. As global efforts intensify, the ongoing fight against malaria remains crucial in achieving long-term health and development goals.

HUBBLE SPACE TELESCOPE: 35 YEARS OF COSMIC DISCOVERY

WHY IN THE NEWS?

In celebration of the NASA/ESA Hubble Space Telescope's 35 years in Earth orbit, a stunning collection of recent images captured by Hubble has been released. These images showcase a range of celestial phenomena, from detailed views of Mars to striking depictions of stellar birth and death, as well as a magnificent neighbouring galaxy. Hubble's continued success and relevance in space exploration highlight its significant contributions to our understanding of the universe over the past three decades. As one of the most iconic scientific instruments in history, Hubble's imagery continues to inspire and shape our perception of the cosmos. The release of these images marks a milestone in the telescope's legacy,



reaffirming its position as a cornerstone of modern astronomical research.

HUBBLE TELESCOPE

The Hubble Space Telescope (HST) is one of the most iconic and influential instruments in the history of astronomy. Launched on April 24, 1990, by NASA aboard the Space Shuttle Discovery (STS-31 mission), it has provided humanity with breathtaking views of space and profound insights into the universe. The Hubble Space Telescope is named after Edwin Hubble, the American astronomer whose work helped establish the concept of an expanding universe.



KEY FEATURES OF THE HUBBLE TELESCOPE

Feature	Details
1. Large Primary Mirror	✧ Size: 2.4 meters (7.9 feet) – Allows Hubble to capture high-resolution images of distant objects.
2. Wide Range of Observations	✧ Observes in UV, visible, and near-infrared wavelengths, enabling it to study various cosmic phenomena.
3. Orbit Above Earth's Atmosphere	✧ Altitude: 547 kilometres (340 miles) – Avoids atmospheric distortion, providing clearer images than ground-based telescopes.
4. High-Resolution Imaging	✧ Achieves a resolution of 0.05 arcseconds, offering incredibly sharp images of distant objects.
5. Significant Discoveries	✧ Helped determine the expansion rate of the universe and contributed to the discovery of dark energy and refined the age of the universe to 13.8 billion years.
6. The Hubble Deep Field	✧ Captured in 1995, revealed thousands of galaxies in a small patch of sky, providing insight into the early universe.
7. Serviceable in Space	✧ Designed to be serviced and upgraded by astronauts. Five servicing missions between 1993 and 2009 were conducted to install new instruments and fix issues.
8. Data Contributions to Science	✧ 1.4 million observations and 15,000 scientific papers published based on Hubble's data, influencing various fields of astrophysics.
9. Lifetime and Legacy	✧ Operational for over 30 years, expected to continue until 2030-2040, maintaining its importance despite the launch of new telescopes like James Webb.

ACHIEVEMENTS OF THE HUBBLE SPACE TELESCOPE

1. **Expansion Rate of the Universe:** Hubble's observations helped measure the Hubble Constant, refining the expansion rate of the universe. The current value is about 73.3 km/s/Mpc, which is crucial for understanding cosmology.
2. **Discovery of Dark Energy:** In 1998, Hubble's data helped reveal the existence of dark energy, which accounts for around 68% of the universe, by observing the accelerating expansion of the universe.
3. **Determining the Age of the Universe:** By studying Cepheid variable stars, Hubble contributed to refining the age of the universe, now calculated to be approximately 13.8 billion years.
4. **Hubble Deep Field (HDF):** In 1995, Hubble captured the iconic Hubble Deep Field image, revealing thousands of galaxies in a small patch of the sky. This image allowed astronomers to peer back into the 13 billion-year history of the universe.
5. **Black Hole Imaging:** In 2006, Hubble helped confirm the presence of supermassive black holes at the centres of galaxies, including our own Milky Way, which hosts a 4 million solar mass black hole.
6. **Discovery of Exoplanets:** Hubble played a significant role in identifying and studying hundreds of exoplanets, contributing to our understanding of planetary atmospheres. Some of these exoplanets have shown signs of water vapour.

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7. **Tracking the Impact of Comet Shoemaker-Levy 9:** In 1994, Hubble provided real-time images of Comet Shoemaker-Levy 9's dramatic collision with Jupiter, giving scientists valuable insights into the effects of planetary impact events.
8. **Stellar and Planetary Birth and Death:** Hubble captured breathtaking images of stellar nurseries (such as the Eagle Nebula) and supernova remnants, advancing our understanding of stellar life cycles, from birth to death.

CONCLUSION

The Hubble Space Telescope has significantly shaped our understanding of the universe over the past 35 years, producing ground-breaking discoveries and iconic imagery. Despite the advent of newer technologies, its legacy continues to inspire and influence the field of astronomy, underscoring its indispensable role in the exploration of space. Hubble has not only expanded our knowledge of distant galaxies but also paved the way for future space missions, such as the James Webb Space Telescope. As we celebrate its accomplishments, Hubble remains a testament to human ingenuity and the quest to explore the cosmos. Its invaluable contributions will continue to fuel astronomical research for years to come.

ORGANIC LEDS (OLEDS): A BREAKTHROUGH IN MODERN DISPLAY SOLUTIONS

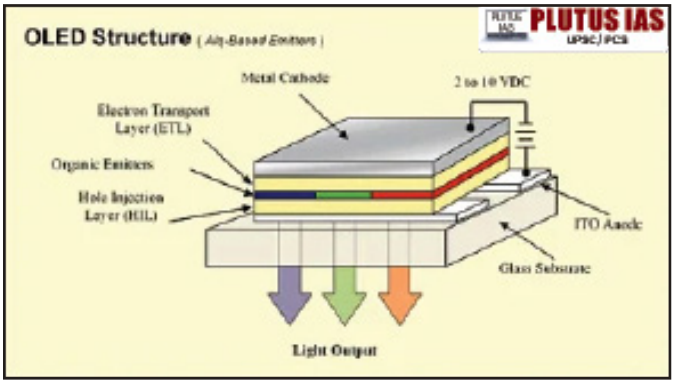
WHY IN THE NEWS?

Organic Light-Emitting Diodes (OLEDs) are in the news due to their rising use in advanced display technologies such as foldable smartphones, ultra-thin televisions, and flexible screens. These devices leverage OLEDs for their key advantages, including self-illumination, ultra-thin and flexible design, high contrast ratios, vibrant color reproduction, lightweight structure, and energy-efficient operation. Recent developments in material science and nanotechnology have further enhanced the appeal of OLEDs, making them a preferred choice over traditional LCD and LED technologies. However, the multilayer structure of OLEDs, while essential for efficient charge transport and light emission, also leads to gradual degradation of the organic layers over time. This degradation remains a major challenge, limiting both the lifespan and efficiency of OLED devices.



WHAT IS ORGANIC LIGHT-EMITTING DIODES (OLEDS)

Organic Light-Emitting Diodes (OLEDs) are display and lighting devices made from organic (carbon-based) materials that emit light when electricity is applied. They are self-illuminating, meaning they do not require a backlight. OLEDs consist of thin organic layers sandwiched between two electrodes. When voltage is applied, electrons and holes recombine to emit light. They offer flexibility, high contrast, and vivid colour reproduction. OLEDs are widely used in modern smartphones, TVs, and wearable electronics.



ORGANIC LIGHT-EMITTING DIODES VS LIGHT EMITTING DIODES

Feature	OLED (Organic LED)	LED (Light Emitting Diode)
Material	✧ Organic compounds	✧ Inorganic semiconductors (e.g., gallium arsenide)
Light Source	✧ Self-emissive; each pixel emits its own light	✧ Requires a backlight for display (in LED TVs)
Flexibility	✧ Flexible, can be bent or folded	✧ Rigid, not easily flexible
Thickness	✧ Ultra-thin and lightweight	✧ Thicker due to additional layers and backlighting
Contrast and Viewing Angle	✧ High contrast and wide viewing angles	✧ Lower contrast and limited viewing angles
Power Efficiency	✧ More efficient for dark displays	✧ More efficient for bright displays
Applications	✧ Smartphones, foldable displays, high-end TVs, wearables	✧ Traditional lighting, LED TVs, indicators, and display panels
Cost	✧ Expensive due to complex materials and manufacturing	✧ Cheaper and widely available

ORGANIC LIGHT-EMITTING DIODES (OLEDS) APPLICATIONS

1. **Smartphones and Tablets:** OLEDs provide high contrast, vibrant colours, and flexible, ultra-thin designs, enhancing battery efficiency in mobile devices.
2. **Televisions:** Used in premium TVs for superior picture quality, deep blacks, and wide viewing angles.
3. **Wearable Electronics:** OLEDs are ideal for smartwatches and fitness trackers due to their thin, flexible nature.
4. **Flexible Displays:** OLEDs enable foldable, rollable, and curved screens, revolutionising modern device designs.
5. **Automotive Displays:** OLEDs are used in dashboards, infotainment systems, and ambient lighting for vehicles.
6. **Lighting:** Efficient for large, uniform light panels in architectural and decorative lighting systems.
7. **Virtual and Augmented Reality:** OLEDs offer fast response times, high refresh rates, and vibrant colours for immersive VR and AR experiences.
8. **Digital Signage:** Used in dynamic advertising displays, billboards, and storefront windows for vivid, high-quality visuals.
9. **Medical Displays:** OLEDs are used in medical imaging equipment for clear, high-contrast diagnostic screens.
10. **Projectors:** OLEDS are utilized in projectors for bright, high-quality images with excellent colour accuracy.

CONCLUSION

Organic Light-Emitting Diodes (OLEDs) represent a significant breakthrough in modern display technologies, offering unique advantages such as flexibility, high contrast ratios, energy efficiency, and vivid color reproduction. Their self-emissive nature allows for ultra-thin designs, making them ideal for advanced devices like foldable smartphones and ultrathin televisions. Despite their promising benefits, the challenges of material degradation and limited lifespan remain key hurdles. As research in material science and nanotechnology continues, OLEDs are expected to evolve, leading to enhanced

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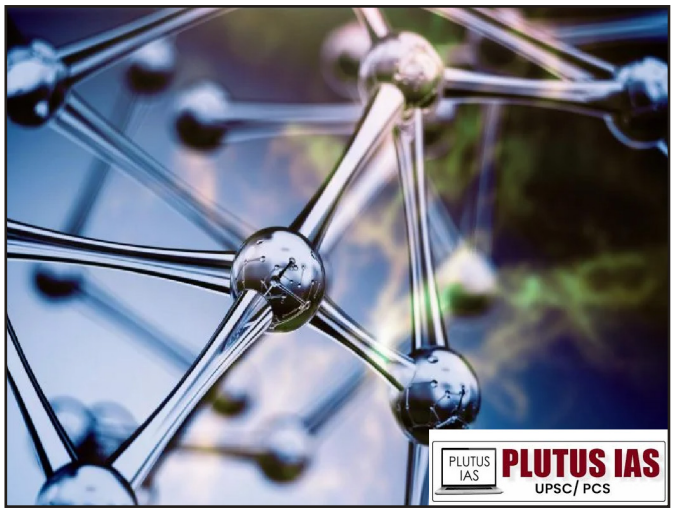
durability, efficiency, and broader applications in consumer electronics and lighting solutions. The ongoing advancements in OLED technology not only mark a milestone in display innovation but also pave the way for the next generation of ultra-thin, flexible, and energy-efficient devices.

Source:https://scitechdaily.com/revolutionizing-oleds-new-spectroscopy-technique-extends-device-lifespan/

PFAS: PER- AND POLYFLUOROALKYL SUBSTANCES

WHY IN THE NEWS?

An international team of researchers from the University of Bristol (UK), Hirosaki University (Japan), and Université Côte d'Azur (France) has announced a major scientific breakthrough in the search for safer alternatives to PFAS (Perfluoroalkyl Substances). These synthetic "forever chemicals" are widely used in consumer goods but are notoriously persistent and toxic. The new development involves designing fluorine-free compounds that mimic the water- and stain-resistant properties of PFAS without their environmental and health hazards. This research offers hope for replacing PFAS in critical applications such as firefighting foams, cookware, food packaging, cosmetics, and textiles, and has been hailed as a milestone in the global effort to phase out harmful chemical substances.



WHAT IS PFAS?

PFAS are a group of synthetic chemicals used since the 1940s in products like non-stick cookware, fire-fighting foams, and industrial processes. They are manufactured to resist heat, oil, water, and chemical reactions. Their widespread utility has led to global distribution. These compounds are characterized by extremely strong carbon-fluorine bonds. This bond strength makes them highly stable, and they do not degrade easily, leading to persistent contamination. Because of their durability, PFAS are often called "forever chemicals." They remain in the environment and the human body for years, accumulating over time. PFAS have been detected in water, soil, air, and human blood samples worldwide. Even remote regions like the Arctic show PFAS traces, highlighting their extensive reach through air and ocean currents. Over 4,700 PFAS compounds have been identified, though most are not well understood. Only a few, like PFOA and PFOS, have been extensively researched and regulated due to proven health risks. Regulatory bodies such as the EPA and ECHA have prioritized PFAS for restriction and study. Many governments are imposing limits on their use, though full bans are still rare. PFAS contamination is now a global environmental concern, requiring coordinated regulatory and scientific response. Without action, PFAS accumulation may increase ecological and public health burdens for decades.

VARIOUS EXAMPLES OF PFAS

1. **PFOA (Perfluorooctanoic acid):** Used in non-stick cookware, textiles, and sealants. PFOA has been phased out in many countries but remains in the environment due to its past usage and persistence. It has been linked to testicular and kidney cancers, thyroid disease, and high cholesterol levels. Cleanup is difficult as PFOA contaminates groundwater and resists most conventional treatment methods.
2. **PFOS (Perfluorooctane sulfonate):** Previously used in Scotchgard and firefighting foams. PFOS is now listed under the Stockholm Convention due to its bioaccumulative and toxic nature. It can cross the placenta, affecting fetal development, and is found in human breast milk and blood. Despite bans, it continues to appear in remote environments due to long-range atmospheric transport.
3. **PFNA (Perfluorononanoic acid):** Common in coatings and adhesives. Associated with liver, kidney, and developmental toxicity, PFNA is

under increasing regulatory scrutiny. Studies show it interferes with lipid metabolism and immune function in animals and humans. It is being detected more frequently in food chains and urban water sources.

4. **PFHxS (Perfluorohexane sulfonic acid):** A shorter-chain PFAS used in cleaning products. While considered less bioaccumulative than PFOS, it is still persistent and widespread in aquatic systems. Recent data suggest it may disrupt reproductive hormones and delay puberty. Regulatory agencies are now considering including it in watch lists for drinking water standards.
5. **PFBS (Perfluorobutane sulfonate):** Used as a substitute for PFOS in some applications. Though considered safer, PFBS has been linked to thyroid hormone disruption and remains environmentally mobile. It moves quickly through soil and water, raising concerns over groundwater contamination. Some jurisdictions have already set health advisory limits for PFBS in drinking water.
6. **GenX chemicals:** Replacement chemicals for PFOA in industrial production. New research shows that GenX may also have reproductive and liver toxicity similar to older PFAS. It has been detected in rivers and drinking water near manufacturing sites. Though marketed as safer, GenX lacks long-term human toxicity data, making regulation difficult.
7. **PTFE(Polytetrafluoroethylene):** A fluoropolymer used in Teflon products. While PTFE itself is stable, its manufacturing process may involve harmful PFAS precursors. During degradation at high temperatures, it may release toxic fumes and particulates. Its widespread use continues to raise concerns about occupational exposure and waste disposal.

APPLICATIONS OF PFAS

1. **Cookware (non-stick):** Teflon-coated pans use PFAS to prevent food from sticking. Though effective, these pans can release toxic fumes if overheated or scratched. The decomposition products of PFAS at high temperatures can cause polymer fume fever in humans. Long-term use of damaged non-stick pans increases the risk of ingesting PFAS particles.
2. **Textiles and leather:** PFAS make fabrics water and stain-resistant. Outdoor gear and carpets often contain PFAS, contributing to indoor exposure. These coatings wear off over time, releasing PFAS into household dust and air. Workers in textile industries face higher exposure risks during fabric treatment processes.
3. **Food packaging:** Fast food wrappers and pizza boxes often have PFAS coatings. These chemicals can migrate into food, especially when heated. Regular consumption of packaged food is a growing route of dietary PFAS intake. Waste from such packaging contributes to landfill leachate contamination.
4. **Firefighting foams (AFFF):** Used at airports and military bases for extinguishing fuel fires. Contamination from foam runoff has polluted groundwater across the globe. Many regions report drinking water supplies tainted with PFAS from training exercises. Efforts are now underway to develop fluorine-free alternatives to AFFF.
5. **Cosmetics:** Waterproof mascaras and foundations use PFAS for durability. Consumers unknowingly apply these chemicals daily, increasing exposure risk. PFAS in cosmetics can penetrate the skin or be absorbed through tear ducts and lips. Lack of labeling transparency means users are often unaware of chemical content.
6. **Electronics manufacturing:** PFAS are used in semiconductors and circuit boards. Their stability is critical for cleanroom environments but leads to waste challenges. PFAS waste from chip manufacturing often ends up in water streams without adequate treatment. Regulations are tightening on emissions from electronics plants using these substances.
7. **Medical devices:** Certain catheters and implants use PFAS for biocompatibility. While beneficial in critical care, their disposal poses environmental concerns. PFAS coatings reduce friction and prevent rejection, making them essential in some tools. hospitals often lack protocols for handling PFAS-containing medical waste.

CONCERNS RELATED TO PFAS

1. **Health impacts:** PFAS exposure is linked to cancer, immune dysfunction, and hormonal imbalances. Even low-dose exposure over time may have cumulative effects on human health. Studies associate PFAS with thyroid disease, developmental delays in children, and increased cholesterol levels. Pregnant women and infants are particularly vulnerable to PFAS-related developmental harm.
2. **Bioaccumulation:** PFAS build up in blood, liver, and kidneys. Their half-life in the human body can span several years, posing chronic exposure risks. Unlike many toxins, PFAS are not easily excreted, meaning repeated small exposures add up. Blood testing has revealed near-universal presence of PFAS in populations worldwide.
3. **Water contamination:** Thousands of sites worldwide report PFAS in drinking water sources. Treating contaminated water requires costly filtration methods like reverse osmosis. Municipal systems often lack the technology or funding to filter PFAS effectively. In rural and low-income areas, people may unknowingly consume unsafe water for years.
4. **Environmental persistence:** PFAS resist breakdown by sunlight, microbes, and heat. This means they can persist in ecosystems indefinitely, affecting soil and aquatic organisms. Their classification as "forever chemicals" reflects their durability and environmental threat. Even trace quantities released decades ago are still detectable in soil and sediment samples.
5. **Wildlife disruption:** PFAS have been found in birds, fish, and polar bears. These chemicals interfere with fertility, growth, and metabolism in animals. Predators at the top of the food chain accumulate the highest PFAS concentrations. Ecosystem balance may be affected as sensitive species decline or behave abnormally.
6. **Regulatory hurdles:** Many PFAS are unregulated or unknown. This lack of comprehensive legislation allows continued production and export. The chemical industry's introduction of new PFAS variants often outpaces regulators. A lack of international consensus hampers effective global action on PFAS control.

RECENT ALTERNATIVES TO PFAS

1. **Fluorine-free foams (F3):** Now used in some airports and fire departments. These alternatives offer similar performance without long-term contamination. F3 foams are especially favored in Europe and Australia where PFAS restrictions are stronger. They are biodegradable and do not persist in groundwater, making them safer for the environment.
2. **Silicone-based water repellents:** Used in clothing and tents. Though not as durable as PFAS, they are significantly less toxic. These repellents provide adequate protection against rain and stains for short to moderate use. Companies are improving formulations to enhance longevity without sacrificing safety.
3. **Ceramic cookware:** A PFAS-free alternative to Teflon. Provides a non-stick surface without toxic fumes or particles. Modern ceramic coatings are more resistant to scratching and heat degradation. While they may wear out faster, they present no chemical exposure risks when used properly.
4. **Polyether-based surfactants:** Used in industrial processes. These break down more easily in the environment compared to PFAS. Industries are adopting them in applications like emulsion polymerization and oil recovery. They offer functional performance while reducing ecological and health burdens.
5. **Bio-based food packaging:** Plant-based materials are replacing PFAS-coated paper. These degrade naturally and are safe for both humans and ecosystems. Materials like PLA (polylactic acid) and bamboo fibers are now used in takeaway containers. Adoption is growing in Europe and North America due to stricter food packaging regulations.
6. **Government research:** Agencies like the EPA are funding PFAS-free innovations. This includes safer flame retardants and hydrophobic coatings. Public-private partnerships are accelerating the development of green chemistry solutions. Grants and pilot programs support startups working on sustainable chemical replacements.

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7. **Corporate responsibility:** Firms like IKEA and Levi's have committed to PFAS-free product lines. Consumer demand is pushing industries toward greener alternatives. Retailers now label and market products as "PFAS-free," giving consumers informed choices. Transparency and sustainability are becoming central to brand reputations.

CONCLUSION

PFAS have been indispensable in modern life but come at a high ecological and health cost. Their persistence and toxicity make them one of the most pressing pollution issues today. Scientific evidence has strongly linked PFAS to serious long-term health impacts. As more studies emerge, the need for urgent policy responses becomes clearer. Regulation of PFAS is advancing, but thousands remain unaddressed. A precautionary approach is needed to limit exposure from lesser-known variants.Innovation in safer substitutes is encouraging but requires greater investment. A full transition away from PFAS will take time, regulation, and industry cooperation. Public awareness is essential to reduce demand for PFAS-containing products. Labelling and transparency can empower consumers to make informed choices A circular, sustainable economy cannot afford the burden of forever chemicals. Phasing out PFAS is crucial for achieving global environmental and health goals.

SOURCE:https://scitechdaily.com/major-breakthrough-non-toxic-alternative-to-forever-chemicals-discovered/

S-400 TRIUMF: A GAME-CHANGER IN STRENGTHENING INDIA'S AIR DEFENCE CAPABILITIES

WHY IN THE NEWS?

Operation Sindoor has recently made headlines due to its bold and decisive execution by Indian armed forces, targeting terrorist camps across the border in Pakistan and Pakistan-occupied Kashmir (Pok). The operation was launched as a pre-emptive counter-terror measure, aiming to dismantle terror infrastructure threatening Indian security. In retaliation, Pakistan initiated a coordinated multi-wave offensive involving drones and missiles aimed at key Indian cities and military installations, including Awantipora, Srinagar, Jammu, Pathankot, Amritsar, Ludhiana, and Bhuj. However, India's advanced S-400 air defence system, codenamed "Sudarshan Chakra," effectively neutralised the aerial threats, marking a significant demonstration of India's enhanced defensive preparedness and strategic deterrence capabilities.



WHAT IS S-400?

The **S-400 Triumf** is an advanced long-range air defence missile system developed by Russia, designed to detect, track, and destroy a variety of aerial threats including aircraft, drones, cruise missiles, and ballistic missiles. With a range of up to 400 km and the ability to engage multiple targets simultaneously, it is considered one of the most powerful surface-to-air defence systems in the world. The system uses multiple types of missiles to create a layered defence shield. Its radar can track stealth targets and operate effectively in complex combat environments.

FEATURES OF S-400

1. **Multi-Target Capability:** Can track up to 80 targets and engage 36 targets simultaneously, ensuring robust defence even during large-scale aerial attacks.p
2. **Range:** Provides long-range interception with a strike range of up to 400 km for aircraft and 40–60 km for ballistic missiles, depending on the missile used.
3. **Altitude Coverage:** Can engage targets at altitudes ranging from 10 meters to 30

kilometres, offering protection against both low-flying drones and high-altitude threats.

4. **Missile Versatility:** Can fire a mix of missiles like 40N6 (400 km), 48n6 (250 km), 9M96E2 (120 km), and 9M96E (40 km), allowing layered and flexible defence.
5. **360-Degree Coverage:** Delivers comprehensive all-around protection, making it effective against multi-directional and simultaneous attacks.
6. **Advanced Threat Detection:** Equipped with powerful radars like the 91N6E Big Bird and 92N6E Grave Stone, it can detect stealth aircraft, cruise missiles, UAVs, and even some hypersonic threats.
7. **Rapid Deployment:** The entire system, including command vehicles, launchers, and radar units, can be deployed in under 5–10 minutes, enabling swift operational readiness.
8. **Integrated Command System:** S-400 can be linked with other defence systems like the Indian Integrated Air Command and Control System (IACCS), enhancing coordination and battlefield awareness.
9. **Combat Proven and Exported:** Already deployed by Russia, and acquired by countries like India, China, and Turkey, the system's performance in actual conflict zones has proven its reliability and effectiveness.

WHY S-400 IS IMPORTANT FOR INDIA

1. **Enhanced Air Defence:** Provides multi-layered protection against aircraft, missiles, UAVs, and ballistic missiles. Range of up to 400 km, covering key cities and strategic assets.
2. **Strategic Deterrence:** Against Pakistan Covers large portions of Pakistani airspace, deterring aerial threats.
3. **Against China:** Tracks and intercepts Chinese aircraft, AWACS, and aerial refuellers from within Indian territory.
4. **Technological Superiority:** Advanced radars, tracking, and missile capabilities surpass regional systems like HQ-9 and Patriot.Can track 300 targets and engage 36 simultaneously.
5. **Force Multiplier for IAF:** Protects Indian airspace, allowing IAF assets to focus on offensive operations.
6. **Integration with Indigenous Systems:** Complements systems like Akash and MRSAM, forming a layered defence network.
7. **Sea Denial:** Tracks and neutralises naval aircraft and ships, enhancing coastal security.
8. **Countering Emerging Threats:** Designed to intercept stealth aircraft, drones, and low-altitude missiles.
9. **Strategic Autonomy:** Demonstrates India's independent defence policy, resisting external pressures (e.g., CAATSA sanctions).

CONCLUSION

The S-400 Triumf is a critical asset for India's national security, strengthening its air defence and enhancing deterrence against both regional and global threats. With its advanced capabilities, including the ability to track and neutralise a variety of aerial threats, the S-400 provides multi-layered protection to key cities, military installations, and vital infrastructure. In the context of Operation Sindoor, the S-400's role in effectively neutralising the Pakistani drone and missile threats highlights its strategic importance in defending India's sovereignty and securing its airspace. The acquisition of the S-400 not only bolsters India's air defence but also complements its indigenous defence systems, creating a robust and integrated security framework. It enhances India's strategic autonomy, allowing it to make independent defence decisions, particularly in resisting foreign pressures, such as the CAATSA sanctions.

QUANTUM KEY DISTRIBUTION: A BREAKTHROUGH IN INDIA'S CYBERSECURITY INFRASTRUCTURE

WHY IN THE NEWS?

In a significant development towards enhancing India's capabilities in quantum-secure communication, the Centre for Development of Telematics (C-DOT) has signed a Memorandum of Understanding (MoU) with Synergy Quantum India Private Limited, a deep-tech company specializing in quantum technologies. This collaboration aims

capabilities in

to develop Drone-based Quantum Key Distribution (QKD) systems using the decoy-based BB84 protocol with polarization encoding, at Technology Readiness Level 6 or above. The initiative supports the goals of the Atmanirbhar Bharat mission by fostering indigenous R&D in emerging technologies. The partnership will also facilitate co-development of research proposals, academic dissemination, and organization of expert talks and symposia to promote innovation in quantum communication.

WHAT IS QUANTUM KEY DISTRIBUTION TECHNOLOGY(QKDT)?

Quantum Key Distribution Technology (QKDT) is a cutting-edge method of secure communication that uses the principles of quantum mechanics to exchange encryption keys between two parties. The primary goal of QKDT is to ensure that encryption keys can be shared in a way that is provably secure—meaning that any attempt by an unauthorized party to intercept or tamper with the key can be detected immediately.

KEY FEATURES OF QKDT:

1. **Based on Quantum Physics:** Unlike traditional encryption, which relies on complex mathematical algorithms, QKDT uses the fundamental laws of quantum mechanics—such as superposition, entanglement, and the no-cloning theorem.
2. **Security Guarantee:** If an eavesdropper tries to intercept the quantum key, the quantum state of the particles will be disturbed, alerting the communicating parties to the intrusion.
3. **Use of Photons:** The technology typically uses individual photons (light particles) transmitted over optical fiber cables to encode key information (called qubits).
4. **Unbreakable Encryption:** Because of quantum laws, QKDT cannot be cracked even by quantum computers, making it a key tool in future-proof cybersecurity.
5. **Example Protocols:** Popular QKDT protocols include BB84, E91, and Decoy State Protocols

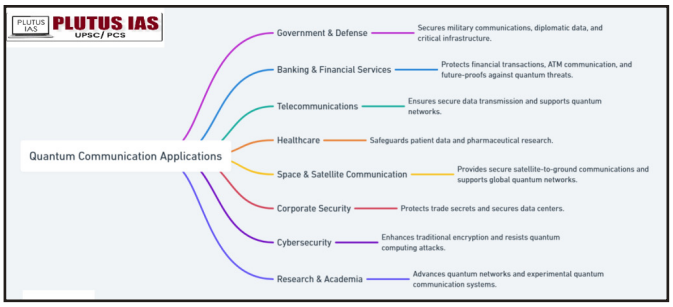
QKDT VS TRADITIONAL KDT

Feature	Quantum Key Distribution Technology (QKDT)	Traditional Key Distribution (KDT)
Underlying Principle	✧ Based on quantum mechanics (e.g., superposition, entanglement)	✧ Based on mathematical algorithms and computational hardness
Security Basis	✧ Physics-based – any eavesdropping disturbs the quantum system	✧ Algorithm-based – depends on difficulty of solving problems
Eavesdropping Detection	✧ Yes – intrusion alters quantum states and is detectable	✧ No direct detection – intrusion can go unnoticed
Vulnerability to Quantum Computers	✧ Not vulnerable – inherently resistant to quantum attacks	✧ Vulnerable – quantum computers can break current algorithms
Key Transmission Medium	✧ Photons over optical fibers or free-space channels	✧ Classical communication channels like the internet

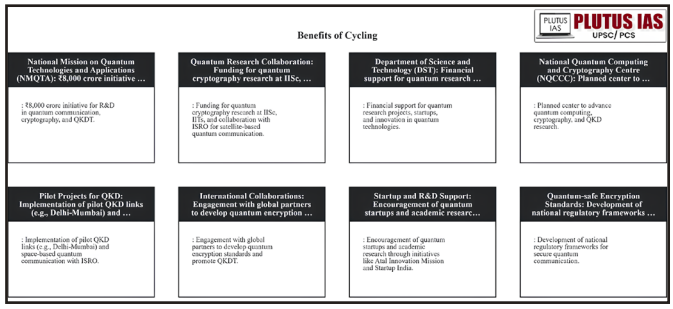
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Example Protocols	✧ BB84, E91, Decoy State Protocols	✧ RSA, Diffie-Hellman, ECC (Elliptic Curve Cryptography)
Implementation Complexity	✧ High – requires specialized hardware like single-photon detectors	✧ Moderate – compatible with existing digital infrastructure
Key Distribution Range	✧ Limited – typically up to 100–300 km over fiber (without repeaters)	✧ Practically unlimited – via internet and global networks
Maturity and Adoption	✧ Emerging – research and pilot projects ongoing	✧ Mature – widely adopted in global systems
Use Cases	✧ Ultra-secure communication (e.g., defense, banking, government)	✧ General encryption across internet services and data exchange

QKDT APPLICATIONS



WHAT ARE GOVT. INITIATIVES TO PROMOTE QKDT IN INDIA



CHALLENGES IN QKDT APPLICATION

1. **Infrastructure Limitations:** Quantum key distribution requires advanced infrastructure, such as high-quality fiber optic cables and photon detectors, which can be expensive and complex to implement.
2. **Distance Limitations:** The range of QKD is typically limited to around 100-200 km due to photon loss in transmission. Longer distances require specialized techniques, such as satellite-based communication.
3. **Photon Loss and Noise:** Transmission of photons through fibers or air is prone to loss, noise, and environmental interference, which can degrade the quality and security of the key exchange.
4. **Scalability Issues:** Scaling QKD systems for widespread use, particularly for large networks, is a significant challenge, especially due to the technical complexity and high cost.
5. **Integration with Existing Infrastructure:** Integrating QKDT with existing cryptographic systems and networks poses compatibility and security challenges.
6. **High Cost:** The cost of QKD equipment, such as photon detectors and quantum communication devices, remains high, limiting the widespread adoption.
7. **Security Vulnerabilities:** While QKDT offers theoretical security, real-world implementations may still be vulnerable to attacks like photon number splitting or imperfections in quantum hardware.
8. **Regulatory and Standardization Issues:** The lack of universal standards and regulatory frameworks for QKD can hinder its integration into commercial systems and widespread adoption.

WAY FORWARD

1. **Enhanced Research and Development:** Continued investment in R&D is crucial to overcoming the technical barriers such as photon loss, noise, and scalability.

2. **Infrastructure Development:** Governments and private sectors should focus on developing and upgrading the necessary infrastructure for QKDT, including the installation of high-quality optical fibers, photon detectors, and quantum-safe hardware.
3. **Cost Reduction:** As the technology matures, economies of scale should help reduce the cost of key components such as photon detectors and quantum communication devices.
4. **Standardization:** International standardization bodies must work on defining and establishing universal standards for QKDT to ensure compatibility, scalability, and security across global platforms.
5. **Integration with Existing Cryptographic Systems:** Researchers and industry players need to develop hybrid systems that combine classical and quantum key distribution to ensure smooth integration with existing infrastructure and protocols.
6. **Policy and Regulatory Framework:** Governments should create clear regulatory guidelines and policies around the usage of QKDT to encourage innovation while safeguarding national security and privacy concerns.
7. **Public-Private Partnerships:** Collaboration between government agencies, research institutions, and private companies can expedite the development and deployment of QKDT, especially in areas like defense, banking, and communication sectors.
8. **Awareness and Training:** Building a skilled workforce through specialized training programs in quantum technologies will be essential for the smooth adoption of QKDT in various industries.

CONCLUSION

Quantum Key Distribution Technology (QKDT) offers a revolutionary approach to secure communication by leveraging quantum mechanics, ensuring encryption keys cannot be intercepted without detection. Unlike traditional cryptography, QKDT's security relies on quantum principles, making it resistant to quantum computer threats. However, challenges like high infrastructure costs, limited range, and scalability issues remain. The Indian government is fostering QKDT development through initiatives like the C-DOT and Synergy Quantum India partnership, aiming to promote indigenous research. For broader adoption, continued advancements in R&D, infrastructure, standardization, and clear regulatory policies are necessary. As these hurdles are overcome, QKDT could significantly enhance cybersecurity across critical sectors such as defense and banking.

MODERNISING MILITARY HEALTHCARE: FEMTO-LASIK SUITE AT THE FOREFRONT

WHY IN THE NEWS?



The Director General of Armed Forces Medical Services (AFMS), Surgeon Vice Admiral Arti Sarin, and the Director General of Medical Services (Army), Lt Gen Sadhna S Nair, inaugurated a state-of-the-art Femto-LASIK Suite at the Army Hospital (Research and Referral), Delhi Cantt. This advanced facility marks a major milestone in military healthcare, offering customised laser treatments for spectacle removal and addressing borderline refractive errors and corneal diseases. It highlights the Armed Forces' commitment to cutting-edge medical technology and enhanced patient welfare. Army Hospital (R&R) is the apex centre of AFMS.

WHAT IS FEMTO-LASIK?

Femto-LASIK (Femtosecond Laser-Assisted In Situ Keratomileusis) is an advanced form of laser eye surgery used to correct refractive errors such as myopia, hyperopia, and astigmatism. It uses a femtosecond laser to create a precise corneal flap, offering greater accuracy, safety, and faster recovery compared to traditional LASIK. This bladeless technique is especially beneficial for patients with thin corneas or complex prescriptions. The Army Hospital (Research and Referral), Delhi Cantt, recently inaugurated a state-of-the-art Femto-LASIK Suite, reflecting the Armed Forces Medical Services' commitment to cutting-edge healthcare. The new facility will help military personnel eliminate dependence on spectacles, enhancing their operational efficiency and quality of life.

MECHANISM OF FEMTO LASIK: WORKING, FEATURES AND APPLICATIONS

Working Mechanism	Key Features	Applications
✧ **Uses femtosecond laser to create a thin, precise corneal flap (bladeless method).**	✧ Bladeless and highly precise procedure	✧ Correction of myopia (nearsightedness)
✧ **Excimer laser reshapes the cornea to correct refractive errors.**	✧ Customised treatment based on individual corneal topography	✧ Correction of hyperopia (farsightedness)
✧ **The flap is lifted and then repositioned without stitches.**	✧ Faster healing and minimal discomfort	✧ Treatment of astigmatism
✧ **Minimally invasive procedure with minimal tissue damage.**	✧ Suitable for borderline corneal thickness cases	✧ Useful for patients unsuitable for traditional LASIK
✧ **High accuracy and reduced risk of complications.**	✧ Reduced risk of corneal complications	✧ Management of certain corneal disorders
✧ **Enables enhanced visual recovery and stability.**	✧ Higher safety profile compared to conventional LASIK	✧ Recently adopted in military healthcare to enhance combat-readiness

TECHNOLOGICAL AND CLINICAL BENEFITS

1. **Bladeless Precision:** Uses a femtosecond laser instead of a mechanical blade to create the corneal flap. This increases surgical accuracy and significantly reduces complication risks.
2. **Customised Treatment:** Based on individual corneal topography and vision profile. Enables personalised correction, improving surgical outcomes and patient satisfaction.
3. **Faster Recovery:** Minimal tissue disruption promotes quicker healing and less post-op discomfort. Patients can resume normal activities within a shorter time frame.
4. **High Safety Profile:** Reduces chances of flap-related complications, infections, and post-surgical issues. It's considered safer than conventional LASIK, especially in complex cases.
5. **Suitable for Thin Corneas:** Offers vision correction even to patients ineligible for traditional LASIK due to corneal thickness. Expands eligibility to a wider group of patients, including defence personnel.
6. **Minimally Invasive:** The laser performs the entire flap creation without cutting tools. This leads to a less painful and more comfortable surgical experience.
7. **Long-Term Visual Stability:** Delivers stable vision correction with minimal regression over time. Enhances quality of life without the need for repeat procedures in most cases. 8. Enhanced Operational Readiness: Especially useful for armed forces where wearing glasses or contacts is impractical. Improves combat readiness and field performance by ensuring clear unaided vision.

SIGNIFICANCE OF THE FEMTO-LASIK INITIATIVE

1. **Enhanced Vision for Operational Efficiency:** Improves visual acuity of military personnel, reducing dependence on spectacles in combat and field operations.

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2. **Cutting-Edge Medical Advancement:** Demonstrates adoption of state-of-the-art technology in the Armed Forces Medical Services (AFMS), reflecting global standards.
3. **Boosts Readiness and Safety:** Ensures soldiers are visually prepared for high-risk environments, enhancing overall mission readiness and personal safety.
4. **Support for Borderline Cases:** Provides advanced treatment for personnel with thin or irregular corneas who were previously ineligible for LASIK.
5. **Improved Quality of Life:** Offers long-term vision correction, positively impacting daily functioning and psychological well-being of defence staff.
6. **Symbol of Healthcare Modernisation:** Highlights the military's commitment to modern, patient-centric care in line with national healthcare innovation.
7. **Benchmark for Military Hospitals:** Position Army Hospital (R&R) as a leading centre for advanced eye care within the AFMS network.
8. **Potential for Wider Implementation:** Sets a precedent for integrating Femto-LASIK across other military and government medical institutions in the future.

CUTTING-EDGE TECHNOLOGY ADOPTION CHALLENGES IN INDIA

1. **High Cost and Affordability:** Advanced technologies often require huge investments, making them unaffordable for many healthcare institutions, especially in rural areas.
2. **Infrastructure Limitations:** Many regions lack the necessary infrastructure, such as reliable electricity, internet connectivity, and modern facilities to support cutting-edge tech.
3. **Skilled Manpower Shortage:** There is a scarcity of trained professionals and technicians who can operate and maintain sophisticated medical equipment.
4. **Regulatory and Approval Delays:** Complex regulatory frameworks and slow approval processes can delay the introduction and scaling of new technologies.
5. **Unequal Access and Urban-Rural Divide:** High-tech facilities are often concentrated in urban centres, limiting access for rural and remote populations.
6. **Resistance to Change and Awareness Gaps:** Lack of awareness among stakeholders and reluctance to adopt new methods impede technology uptake.
7. **Data Privacy and Cybersecurity Concerns:** Increasing digitalisation raises issues about data protection, privacy, and cybersecurity vulnerabilities.
8. **Sustainability and Maintenance Issues:** Maintaining advanced equipment requires continuous funding and support, which is often lacking in public healthcare.

WAY FORWARD

1. **Increased Investment and Funding:** Boost public and private sector investments to make advanced technologies affordable and widely available.
2. **Strengthening Infrastructure:** Develop robust physical and digital infrastructure, especially in rural and remote areas, to support technology deployment.
3. **Skill Development and Training:** Implement comprehensive training programs to build a skilled workforce capable of operating and maintaining advanced technologies.
4. **Streamlining Regulatory Processes:** Simplify and expedite regulatory approvals to facilitate faster introduction and scaling of new technologies.
5. **Promoting Public-Private Partnerships (PPPs):** Encourage collaborations between government, industry, and academia for innovation, research, and better resource utilisation.
6. **Enhancing Awareness and Change Management:** Conduct awareness campaigns and training to overcome resistance and educate stakeholders about technology benefits.
7. **Focus on Data Security and Privacy:** Establish strong data protection laws and cybersecurity frameworks to build trust in digital technologies.
8. **Ensuring Sustainable Maintenance:** Plan for long-term maintenance, upgrades, and support systems to ensure technology remains effective and reliable.

CONCLUSION

The inauguration of the state-of-the-art Femto-LASIK Suite at Army Hospital (R&R), Delhi Cantt, marks a significant advancement in military healthcare, demonstrating the Armed Forces Medical Services' commitment to adopting cutting-edge medical technology. Femto-LASIK offers safer, more precise, and faster vision correction, enhancing operational readiness and quality of life for defence personnel, especially those with complex eye conditions. While India faces challenges in adopting such advanced technologies nationwide, ranging from cost and infrastructure gaps to skill shortages, targeted investments, capacity building, and streamlined policies can pave the way for wider implementation. This initiative not only sets a benchmark for healthcare modernisation in the armed forces but also serves as a model for expanding access to advanced medical care across the country, contributing to improved health outcomes and operational efficiency.

INDIA UNVEILS ITS FIRST GENOME-EDITED RICE VARIETIES: KAMALA AND PUSA DSR RICE 1

WHY IN THE NEWS?

Union Agriculture Minister Shivraj Singh Chouhan recently announced that India has become the first country in the world to develop rice varieties using genome editing technology. The new seeds will be available for farmers after the required clearances within six months and large-scale seed production will probably take place during the next three crop seasons.



WHAT ARE THE NEW VARIETIES?

A team of researchers from various institutions, guided by the Indian Council of Agricultural Research (ICAR), were behind the development of the two varieties — the DRR Dhan 100, also known as Kamala, which was developed from a popular high-yielding green rice Samba Mashuri, and Pusa DSR Rice 1, which was developed from the Maruteru 1010 (MTU1010) variety.



BENEFITS OF THE NEW RICE VARIETIES KAMALA AND PUSA DST RICE 1

Feature	Kamala	Pusa DST Rice 1
✧ **Higher Yield**	✧ 5.37 tonnes/ha (vs. 4.5 tonnes/ha in Samba Mahsuri)	✧ 3,508 kg/ha (9.66% more than MTU1010's 3,199 kg/ha)
✧ **Drought Tolerance**	✧ High drought resilience, performs well with less water	✧ Not specifically designed for drought, but performs well in tough soils
✧ **Early Maturity**	✧ Matures ~20 days earlier than Samba Mahsuri	✧ Not specifically early maturing
✧ **Salinity & Alkalinity Tolerance**	✧ Moderate tolerance	✧ High tolerance — yields 30.4% more under coastal salinity, 14.66% more under alkalinity

✧ **Environmental Impact**	✧ Lower methane emissions due to shorter crop duration	✧ Supports cultivation in marginal lands, improving land-use efficiency
✧ **Farming Advantage**	✧ Enables multiple cropping and input savings (water, fertiliser)	✧ Expands cultivation to degraded or saline soils
✧ **Parent Variety**	✧ Derived from Samba Mahsuri	✧ Derived from MTU1010

SALIENT FEATURES OF INDIA'S FIRST GENOME -EDITED RICE VARIETIES

1. **High Yield Potential DRR Dhan 100 (Kamala):** Average yield 5.37 tonnes/ha (higher than 4.5 tonnes/ha of Samba Mashuri). Pusa DSR Rice 1: Shows 30.4% yield advantage under coastal saline and water-stressed conditions.
2. **Early Maturity:** These varieties mature 20 days earlier than their parent varieties. Early maturity helps in crop rotation and reduces the overall water requirement.
3. **Climate Resilience:** Drought Tolerance: Performs well under limited water availability. Salinity and Alkalinity Tolerance: Pusa DSR Rice 1 performs well under such stress conditions.
4. **Nutrient Use Efficiency:** High nitrogen-use efficiency, reducing dependency on fertilisers and lowering input costs.
5. **Environmental Sustainability:** Reduced methane emissions due to shorter crop duration and suitability for DSR. Lower water requirement → water conservation.
6. **Non-GMO Status:** Developed using genome editing (SDN1 & SDN2) without introducing any foreign genes. Considered non-GMO in regulatory terms, allowing for faster approvals in many countries.
7. **Enhanced Agronomic Traits:** Better grain quality, pest/disease resistance, and adaptability across multiple agro-climatic zones.

OBJECTIONS TO GENOME-EDITED RICE VARIETIES

1. **Lack of Transparency:** Field trial data was not made public before the announcement. Critics, including ex-ICAR member Venugopal Badara-vada, raised concerns about accountability.
2. **Regulatory Issues:** Exempting SDN-1 and SDN-2 crops from GMO laws is seen as legally questionable. Activist groups argue it bypasses biosafety evaluations.
3. **Seed Sovereignty and IPR Concerns:** Use of patented gene-editing tools may undermine farmers' seed rights. Fear of corporate control over seeds.
4. **Lack of Peer-Reviewed Evidence:** Yield and resilience claims are not yet backed by independent scientific studies.
5. **Public Mistrust:** Conflicting views between government and civil society have led to confusion and concern.

WAY FORWARD

1. **Ensure Transparent Evaluation:** Conduct multi-location field trials and publish results openly to enhance scientific credibility and public trust.
2. **Strengthen Regulatory Oversight:** Establish an independent, science-based biosafety authority to evaluate genome-edited crops rigorously.
3. **Develop a Clear IPR Policy:** Frame policies that balance innovation with protection of farmers' seed rights and prevent monopolistic control.
4. **Engage Stakeholders:** Involve farmers, scientists, civil society, and consumer groups in policy decisions to ensure inclusive development.
5. **Educate the Public:** Launch awareness campaigns to clarify differences between genome editing and traditional GMOs.
6. **Promote Indigenous Innovation:** Encourage public sector R&D to reduce dependence on patented foreign technologies.
7. **Ensure Farmer Access and Benefits:** Make improved seeds affordable and accessible, especially to small and marginal farmers.

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8. **Monitor Long-Term Impact:** Set up systems to track environmental, health, and socio-economic impacts post-release.

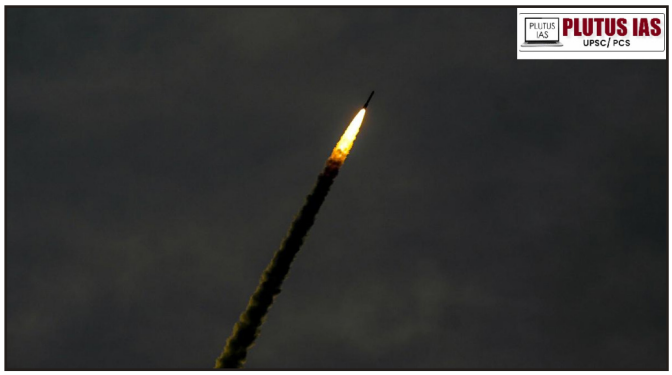
CONCLUSION

India's development of genome-edited rice marks a significant milestone in agricultural innovation, addressing critical challenges like climate change, water scarcity, and food security. The launch of DRR Dhan 100 (Kamala) and Pusa DSR Rice 1 showcases the potential of precision breeding to enhance yield, sustainability, and resilience without introducing foreign genes. However, the controversies surrounding transparency, regulation, and seed sovereignty highlight the need for cautious, inclusive, and science-driven policymaking. By ensuring robust field trials, safeguarding farmer rights, and fostering public trust through education and open data, India can harness the full benefits of genome editing while upholding food sovereignty and environmental safety.

PSLV-C61 MISSION FAILS: A RARE GLITCH IN ISRO'S TRUSTED LAUNCHER

WHY IN THE NEWS?

The Indian Space Research Organisation (ISRO) recently faced a setback with the failure of the PSLV-C61 mission. This mission aimed to launch the Earth observation satellite EOS-09 but failed during the third stage of the flight. The incident marks a rare occurrence for the PSLV, a launch vehicle known for its high reliability and consistent success in satellite missions.



BACKGROUND & MISSION OVERVIEW

Parameter	Details
Mission Name	PSLV-C61 / EOS-09
Launch Date	May 18, 2025, 5:59 a.m. IST
Launch Site	Satish Dhawan Space Centre, Sriharikota
Satellite Weight	1,696.24 kg
Vehicle Configuration	PSLV-XL (Extra Large)

OBJECTIVES OF EOS-09

1. **All-weather Earth Observation:** Provide seamless Earth observation capabilities using C-band Synthetic Aperture Radar (SAR), unaffected by clouds, rain, or time of day.
2. **High-Resolution Imaging:** Capture high-resolution radar images of the Earth's surface for precise monitoring and analysis.
3. **Disaster Management Support:** Aid in early warning, response, and assessment during natural disasters like floods, cyclones, and landslides.
4. **Agricultural Monitoring:** Facilitate crop assessment, yield estimation, and pest/disease detection through periodic radar-based imaging.
5. **Forestry and Biodiversity Tracking:** Monitor forest cover, deforestation, encroachment, and biodiversity-related changes over time.
6. **Soil Moisture and Hydrological Mapping:** Support soil moisture estimation, water body mapping, and groundwater recharge studies, crucial for water resource management.
7. **Climate and Environmental Studies:** Generate continuous datasets for climate change research, glacier monitoring, and long-term environmental analysis.
8. **Enhanced Remote Sensing Reliability:** Ensure consistent, uninterrupted remote sensing outputs irrespective of weather or light conditions.
9. **National Security and Surveillance:** Strengthen India's border surveillance, strategic asset monitoring, and infrastructure planning using radar imaging.

FAILURE DETAILS OF PSLV-C61 MISSION

1. **Stage of Failure:** The malfunction occurred during the third stage, which uses a solid rocket motor.
2. **Role of Third Stage:** Provides the thrust to achieve desired orbital velocity and trajectory.

3. **Technical Anomaly:** Initial findings point to a drop in chamber pressure in the third-stage motor.
4. **Investigation Status:** A Failure Analysis Committee has been set up by ISRO to determine the root cause.
5. **Mission Outcome:** The satellite could not be inserted into the planned Sun Synchronous Polar Orbit (SSPO).
6. **Historical Context:** This marks only the third PSLV failure since 1993, underlining its historical success.

SIGNIFICANCE OF THE FAILURE

1. **PSLV's Reputation:** The PSLV has been considered ISRO's most reliable and versatile launch vehicle since its first flight in 1993.
2. **Strong Track Record:** Prior to this mission, PSLV had achieved 63 successful launches without major anomalies.
3. **Rare Failure:** This mission marks only the third failure in PSLV's operational history spanning over three decades.
4. **Long Gap Since Last Failure:** The previous PSLV failure occurred in 2017 during the PSLV-C39 mission, making this a rare anomaly after nearly 8 years of consistent success.
5. **Mission Criticality:** EOS-09 was a strategically important Earth observation satellite, intended to enhance India's remote sensing capabilities.
6. **Impact on ISRO's Image:** The failure is a significant setback for ISRO's otherwise impeccable PSLV record and space launch reliability.
7. **Operational Implications:** It underlines the increasing complexity and risk involved in modern space missions.
8. **Need for Technological Vigilance:** Emphasizes the importance of rigorous testing, validation, and failure analysis to maintain high reliability in future missions.

WAY FORWARD

1. **Comprehensive Failure Analysis:** ISRO will undertake an in-depth investigation through the Failure Analysis Committee to identify the exact technical causes behind the third-stage anomaly.
2. **Strengthening Quality Control:** Review and enhance quality assurance and testing protocols, especially for critical components like the solid rocket motor in the third stage.
3. **Technology Upgradation:** Accelerate research and development to improve propulsion system reliability and adopt newer materials and techniques to prevent similar issues.
4. **Enhanced Monitoring Systems:** Implement advanced real-time monitoring and telemetry systems during launches to detect early signs of anomalies and take corrective action swiftly.
5. **Mission Risk Assessment:** Refine mission risk analysis frameworks by incorporating lessons learned from recent failures to mitigate future uncertainties.
6. **Capacity Building & Training:** Strengthen technical expertise through specialized training programs for engineers and mission controllers, focusing on anomaly detection and crisis management.
7. **Backup Plans and Contingencies:** Develop robust contingency strategies including backup launch vehicles or satellites to minimize impact on national priorities during mission failures.
8. **Transparent Communication:** Maintain clear and timely communication with stakeholders and the public about progress in investigations and corrective measures to sustain trust in ISRO's capabilities.
9. **Future Mission Safeguards:** Incorporate redundant systems and fail-safes in upcoming PSLV missions, including enhanced checks for propulsion stages to uphold PSLV's legacy of reliability.

CONCLUSION

The failure of the PSLV-C61 mission is a reminder that even the most reliable systems are vulnerable in high-risk fields like space exploration. While this incident interrupts ISRO's otherwise stellar track record, it also provides an opportunity to introspect, upgrade, and strengthen mission protocols. With comprehensive failure analysis, technological improvements, and continued commitment to excellence, ISRO is well-positioned to bounce back stronger and more resilient in future missions. The

agency's vision of making India a space power remains intact, supported by decades of innovation, dedication, and public trust.

PRELIMS QUESTIONS

1. Which of the following parasites is responsible for causing malaria in hu-mans?

(a) Plasmodium falciparum
(b) Plasmodium vivax
(c) Plasmodium malariae
(d) All of the above

2. With reference to the Hubble Space Telescope, consider the following statements:

1. The Hubble Space Telescope was launched in 1990 aboard the Space Shuttle Atlantis.
2. It primarily observes in the infrared and microwave wavelengths.
3. The Hubble Space Telescope has contributed to the discovery of dark energy by observing the accelerating expansion of the universe.

How many of the above-given statements are correct?

(a) Only one (b) Only two
(c) All three (d) None

3. Which of the following statements is/are correct concerning Organic Light-Emitting Diodes (OLEDs)?

1. OLEDs are self-emissive, meaning they do not require a backlight to produce light.
2. OLEDs are made from inorganic semiconductors such as gallium arsenide, simi-lar to traditional LEDs.

Select the correct answer using the code given below:

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

4. Which of the following is true regarding PFAS (Per- and Polyfluoroalkyl Substances)?

(a) PFAS are biodegradable and pose no long-term environmental threat.
(b) PFAS are commonly used in products like firefighting foam, cookware, and tex-tiles.
(c) PFAS are naturally occurring compounds found in rivers and oceans.
(d) PFAS are easily broken down by sunlight and heat.

5. With reference to the S-400 Triumf missile system, consider the following statements:

1. It can engage aerial threats at a range of up to 400 km.
2. It has been developed by the United States and deployed by NATO forces.
3. It supports multiple missile types for layered air defence.

Which of the statements given above is/are correct?

(a) 1 and 3 only (b) 2 and 3 only
(c) 1 only (d) 1, 2 and 3

6. Which of the following are key features of QKDT?

1. It uses classical algorithms to encrypt messages.
2. The security of QKDT is based on quantum mechanics principles.
3. QKDT guarantees unbreakable encryption even against quantum computers.
4. It relies on fiber optics or free-space channels for key distribution.

Select the correct answer using the code below:

(a) 1, 2 and 3 (b) 2 and 3, 4
(c) 1, 3 and 4 (d) 2 and 3

7. With reference to Femto-LASIK technology, consider the following state-ments:

1. Femto-LASIK uses a mechanical blade to create the corneal flap.
2. It is a bladeless laser procedure that offers greater precision than conventional LASIK.
3. Femto-LASIK is especially suitable for patients with thin or irregular corneas.

How many of the above statements are correct?

(a) Only one (b) Only two
(c) All three (d) None

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8. With reference to genome-edited crops in India, consider the following statements:

1. Genome-edited crops developed using SDN-1 and SDN-2 techniques do not in-troduce foreign genes.
2. The DRR Dhan 100 and Pusa DSR Rice 1 were developed by private seed com-panies in collaboration with ICAR.
3. Genome-edited crops are currently exempted from India's GMO regulatory framework.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3

9. With reference to the PSLV-C61/EOS-09 mission, consider the following statements:

1. The PSLV-C61 mission was launched to place the EOS-09 satellite into a Sun Synchronous Polar Orbit.
2. The third stage of the PSLV uses a cryogenic engine for high thrust delivery.
3. EOS-09 was equipped with Synthetic Aperture Radar (SAR) for all-weather, day-and-night imaging.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3

ANSWER-KEY

1. (d)	2. (b)	3. (a)	4. (b)	5. (a)
6. (b)	7. (a)	8. (a)	9. (b)	

MAINS QUESTIONS

1. Discuss the various preventive measures and treatment options for malar-ia. How is India addressing the challenge of malaria elimination, and what progress has been made in recent years? **(250 words, 15 marks)**
2. Describe the Hubble Space Telescope's design and operational features that allow it to capture high-resolution images and contribute to major scien-tific discoveries.? **(250 words, 15 marks)**
3. Organic Light-Emitting Diodes (OLEDs) represent a revolutionary step in display technology. However, despite their advantages, they face several chal-lenges." Discuss the potential of OLEDs in modern display solutions and the challenges limiting their widespread use **(250 words, 15 marks)**
4. Discuss the challenges in regulating and phasing out PFAS in developing countries like India. Highlight the role of global cooperation and industry in-novation in addressing this environmental hazard. (15 marks, 250 words)
5. Examine the strategic significance of the S-400 Triumf missile system for India's national security. What are the key challenges in its deployment and integration into India's defence architecture? **(250 words, 15 marks)**
6. Quantum Key Distribution Technology (QKDT) is often considered a break-through in cybersecurity. Discuss its potential applications, government initi-atives in India to promote it, and the challenges that may hinder its wide-spread adoption. **(250 words, 15 marks)**
7. Discuss the significance of the recent inauguration of the Femto-LASIK Suite at Army Hospital (R&R), Delhi Cantt. What are the benefits and chal-lenges of adopting such advanced medical technologies in India? **(250 words, 15 marks)**
8. Discuss the significance of genome-editing technology in Indian agriculture with reference to the recent development of rice varieties such as DRR Dhan 100 and Pusa DSR Rice 1. What are the concerns raised over such innovations and what should be the way forward? **(250 words, 15 marks)**
9. The failure of the PSLV-C61 mission marks a rare anomaly in ISRO's oth-erwise successful launch history. Examine the key objectives of the EOS-09 satellite, discuss the implications of the mission failure, and suggest steps to enhance the reliability of future satellite missions. **(250 words, 15 marks)**



TERRORISM: MENACE TO HUMANITY

WHY IN THE NEWS?

The Union Government convened an all-party meeting in response to a deadly terrorist attack in Pahalgam, Jammu and Kashmir, which claimed 26 lives and left several injured. The incident has drawn widespread national condemnation. Prime Minister Narendra Modi, while addressing a rally in Madhubani, Bihar, assured the nation that those responsible for the attack, including the conspirators, would be punished beyond their imagination. The government's response underscores its commitment to national security and a zero-tolerance approach towards terrorism.

WHAT IS TERRORISM?

Terrorism is the unlawful use of violence and intimidation, especially against civilians, to achieve political, religious, or ideological objectives. It is a deliberate act aimed at creating fear and chaos in society, often targeting innocent people to draw attention to a cause or to coerce governments into taking or refraining from certain actions.



Terrorist groups operate across national and international borders, exploiting vulnerabilities in security systems and communication networks. Unlike conventional warfare, terrorism does not follow the rules of armed conflict and often strikes without warning, making it a grave threat to peace, stability, and human rights. The impact of terrorism extends beyond immediate casualties, as it destabilizes societies, hampers development, creates mistrust among communities, and burdens nations with economic and psychological trauma.

RECENT TERRORIST ATTACKS IN INDIA

Date	Location	Casualties	Details
April 2025	✧ Pahalgam, Jammu & Kashmir	✧ 26 killed, several injured	✧ Terrorist attack targeting civilians sparked national outrage and response.
May 2023	✧ Rajouri, J&K	✧ 5 civilians killed	✧ Attack on a village; suspected Pakistan-based terror outfit involved.
April 2023	✧ Poonch, J&K	✧ 5 soldiers killed	✧ Militants ambushed an army vehicle; a suspected cross-border group was involved.
March 2022	✧ Sunjuwan, Jammu	✧ 2 killed, 4 injured	✧ A suicide attack near an army camp by Jaish-e-Mohammed terrorists.

February 2019	✧ Pulwama, J&K	✧ 40 CRPF personnel killed	✧ Suicide bombing on a convoy, carried out by Jaish-e-Mohammed.
November 2008	✧ Mumbai, Maharashtra	✧ 166 killed, 300+ injured	✧ Coordinated attack by Lashkar-e-Taiba; involved multiple locations.

TERRORISM AS A THREAT TO INDIA'S NATIONAL SECURITY

1. **Human Loss & Trauma:** Terror attacks like Pulwama (2019) cause heavy casualties and widespread psychological distress.
2. **Internal Security Disruption:** Persistent militancy in J&K and Maoist violence weaken internal stability; over 230 terror incidents were reported in J&K (2022).
3. **Cross-Border Terrorism:** Groups like JeM and LeT operate from across the border, with Pakistan's role frequently highlighted in international forums.
4. **Economic Impact:** Attacks reduce investor confidence and tourism; estimated losses of ₹1,500–2,000 crore per major incident.
5. **Communal Tensions:** Terrorism seeks to divide communities, disturbing social harmony, as seen in attacks like 26/11 Mumbai.
6. **Security Burden:** Huge expenditure on defence and counter-terror efforts; 2024–25 defence budget stands at ₹6.21 lakh crore.
7. **Cyber Threats & Radicalization:** Increasing use of online platforms for recruiting and spreading extremism, particularly among youth.
8. **Global Standing:** Repeated attacks impact India's global image; India continues to push for the UN's Comprehensive Convention on International Terrorism.

COUNTER-TERRORISM MEASURES BY THE GOVERNMENT OF INDIAP

1. **Strengthening Legal Framework:** Enactment of strict laws like the Unlawful Activities (Prevention) Act (UAPA) and amendments to give more teeth to investigating agencies.
2. **Empowering Investigative Agencies:** Strengthening of agencies like the National Investigation Agency (NIA) for dealing with terror cases across states.
3. **Intelligence Coordination:** Establishment of the Multi-Agency Centre (MAC) for seamless intelligence sharing among central and state agencies.
4. **Modernisation of Police and CAPFs:** Upgrading weapons, surveillance systems, and training under schemes like Modernisation of Police Forces (MPF).
5. **Border Security Enhancement:** Deployment of advanced tech like drones, sensors, and fencing along the India-Pakistan and India-Bangladesh borders.
6. **Cybersecurity Measures:** Strengthening of cyber intelligence and surveillance by CERT-In, and monitoring of online radicalization and terror financing.
7. **Financial Action Against Terror Funding:** Coordination with FATF, stricter rules under the Prevention of Money Laundering Act (PMLA), and freezing of terror-linked accounts.
8. **Public Awareness and Community Policing:** Encouraging community participation through intelligence tip-offs and counter-radicalisation campaigns, especially in vulnerable areas.
9. **International Cooperation:** Bilateral and multilateral agreements on counter-terrorism, intelligence sharing, and participation in global forums like the UN, SCO, FATF.

CHALLENGES IN TACKLING TERRORISM

1. **Cross-Border Support for Terrorism:** Terror outfits receive backing from foreign soil, making it difficult to dismantle their infrastructure completely.
2. **Intelligence Gaps and Coordination Issues:** Lack of seamless real-time intelligence sharing between agencies and states can delay preventive action.
3. **Use of Modern Technology by Terrorists:** Encrypted messaging apps, drones, and cyber tools are increasingly used, making detection and interception harder.

4. **Radicalisation and Online Propaganda:** Youth, especially in vulnerable regions, are radicalized via social media and extremist online content.
5. **Terror Financing and Hawala Networks:** Despite regulatory efforts, illegal funding channels like hawala and fake charities continue to support terror operations.
6. **Judicial Delays and Legal Complexities:** Long trials, lack of evidence admissibility, and procedural delays weaken the effectiveness of anti-terror laws.
7. **Human Rights vs Security Dilemma:** Balancing civil liberties with stringent security measures often leads to public backlash or misuse of power. 8. Porous Borders and Terrain Challenges: Difficult terrain in border areas, especially in J&K and the Northeast, aids infiltration and arms smuggling.
9. **State-Level Preparedness Gaps:** Variations in capabilities, training, and resources among state police forces hinder a unified national response.

RECOMMENDATION

1. **Enhance Intelligence Sharing:** Improve coordination between central and state agencies through real-time intelligence and integrated command centres.
2. **Modernise Security Infrastructure:** Invest in advanced surveillance technology, cyber intelligence tools, and AI-driven threat detection systems.
3. **Strengthen Border Management:** Seal vulnerable borders with smart fencing, motion sensors, and drone surveillance, especially in J&K and the Northeast.
4. **Counter Radicalization Initiatives:** Launch targeted de-radicalisation programs in prisons and vulnerable communities, and monitor extremist online content.
5. **Speedy Judicial Processes:** Set up special fast-track courts for terror cases with trained judges to ensure timely justice.
6. **Cut Terror Financing:** Tighten monitoring of NGOs, shell companies, and hawala operations; strengthen cooperation with global bodie like FATF.
7. **Capacity Building of Police Forces:** Provide continuous training, modern equipment, and inter-state collaboration platforms for police and paramilitary forces.
8. **Promote Community Policing:** Build trust with local communities for early warning systems and encourage citizen reporting of suspicious activity.
9. **Push for Global Anti-Terror Cooperation:** Revive efforts to get international backing for the Comprehensive Convention on International Terrorism (CCIT) at the UN.

CONCLUSION

Terrorism continues to be one of the gravest threats to India's national security, social cohesion, and economic progress. The recent attacks, particularly in sensitive regions like Jammu & Kashmir, highlight the evolving and persistent nature of this menace. While the Indian government has taken robust steps—ranging from strengthening legal frameworks to enhancing intelligence and international cooperation—challenges like cross-border terror, radicalization, and technology misuse persist. A holistic approach combining stringent security measures, inclusive development, regional diplomacy, and community engagement is essential. India must continue to lead global efforts for a unified fight against terrorism, while ensuring justice, peace, and resilience at home.

DRUG TRAFFICKING: A GLOBAL THREAT TO SECURITY AND PUBLIC HEALTH

WHY IN THE NEWS?

The Amritsar Zonal Unit of the Narcotics Control Bureau (NCB) has successfully dismantled a major drug diversion cartel through a four-month-long operation spanning four states. The operation resulted in the seizure of drugs worth ₹547 crore and the arrest of 15 individuals. Union Home Minister Amit Shah congratulated the NCB via social media, high-

lighting the crackdown as a major step towards achieving a drug-free Bharat under Prime Minister Narendra Modi's vision.



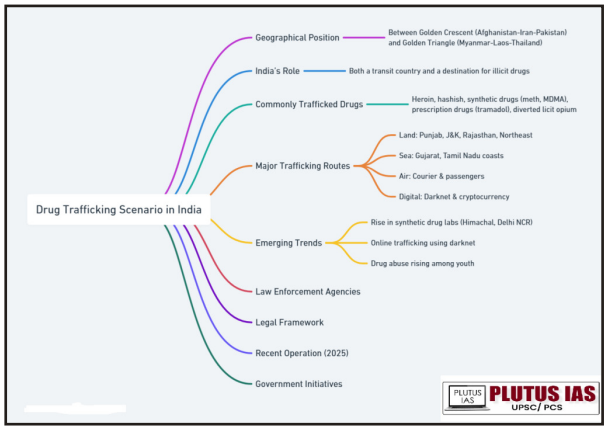
WHAT IS DRUG TRAFFICKING?

Drug Trafficking refers to the illegal trade, cultivation, manufacture, distribution, and sale of substances that are subject to drug prohibition laws. It is a major aspect of organised crime and is considered a serious global issue due to its wide-ranging social, economic, and health impacts.

KEY FEATURES OF DRUG TRAFFICKING:

1. **Illicit Production:** Growing, producing, or synthesising drugs like heroin, cocaine, cannabis, methamphetamine, etc.
2. **Distribution and Transport:** Smuggling drugs across borders or within countries via land, sea, or air routes.
3. **Sale and Supply Chains:** Involves both large criminal networks and street-level dealers.
4. **Money Laundering:** Proceeds from drug sales are often funnelled into legitimate businesses to conceal the origin of funds.

DRUG TRAFFICKING SCENARIO IN INDIA



DRUG TRAFFICKING AS A THREAT TO NATIONAL SECURITY

1. **Narco-Terrorism:** Drug money funds terrorist and insurgent groups, especially in Punjab, J&K, and the Northeast.
2. **Cross-border Threat:** Smuggling across porous borders (Pakistan, Myanmar) undermines sovereignty and fuels illegal arms trade.
3. **Organised Crime Nexus:** Strengthens criminal syndicates involved in extortion, arms, and human trafficking.
4. **Social Instability:** Drug addiction, especially among youth, leads to crime, unrest, and loss of human capital.
5. **Economic Impact:** Fuels black money, money laundering, and distorts the formal economy.
6. **Digital Challenge:** Use of darknet and crypto makes enforcement difficult, posing cyber-security threats.
7. **Border Security Challenge:** Exploits gaps in coastal and land borders, burdening security agencies.

GOVT MEASURES TO COMBAT THE MENACE OF DRUG TRAFFICKING

1. **NDPS Act, 1985:** The primary legal framework to regulate and prohibit the production, sale, and trafficking of narcotic drugs and psychotropic substances.
2. **Narcotics Control Bureau (NCB):** Apex agency for coordinating anti-drug operations across states and with international agencies.
3. **Narco Coordination Centre (NCORD):** Multi-agency platform set up in 2016 to enhance coordination among central and state enforcement agencies.
4. **National Policy on Narcotic Drugs and Psychotropic Substances (2012):** Aims at curbing supply and demand through strict enforcement and de-addiction measures.
5. **Nasha Mukt Bharat Abhiyan (NMBA):** Awareness and rehabilitation campaign launched in 2020 across 272 high-burden districts.
6. **Strengthening Border Surveillance:** Enhanced deployment of BSF, Assam Rifles, and coastal security to check cross-border drug smuggling.

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7. **Use of Technology and Intelligence Sharing:** Deployment of drones, surveillance systems, and creation of a real-time intelligence sharing network among agencies.
8. **International Cooperation:** Bilateral treaties and collaboration with UNODC, SAARC, and neighboring countries for joint operations and control of precursor chemicals.
9. **Financial Tracking and Anti-Money Laundering:** Involvement of ED and FIU to trace and seize proceeds of drug trafficking under PMLA.

CHALLENGES IN COMBATING DRUG TRAFFICKING

1. **Porous and Sensitive Borders:** Difficult terrain along borders with Pakistan, Myanmar, and coastal areas aids smuggling.
2. **Organized Transnational Networks:** Drug cartels operate across countries with sophisticated logistics and safe routes.
3. **Diversion of Licit Drugs:** Misuse of government-approved opium cultivation and pharmaceutical drugs complicates enforcement.
4. **Technological Evasion:** Use of darknet, encrypted messaging, and cryptocurrency for anonymous trade.
5. **Limited Inter-agency Coordination:** Jurisdictional overlaps and poor coordination between central and state agencies.
6. **Manpower and Capacity Constraints:** Lack of trained personnel and advanced equipment in enforcement agencies.
7. **Corruption and Political Nexus:** Infiltration of drug money into local administration and politics weakens anti-drug efforts.
8. **High Demand and Youth Addiction:** Rising domestic demand, especially among youth in border and urban areas.
9. **Weak International Enforcement Mechanisms:** Delays in extradition, intelligence sharing, and joint operations with other countries.

WAY FORWARD

1. **Strengthen Border Security:** Enhance surveillance through technology, drones, and intelligence-sharing at porous borders and coastal areas.
2. **International Cooperation:** Strengthen ties with neighboring countries, UNODC, and global drug control agencies for coordinated anti-trafficking operations and precursor chemical control.
3. **Stricter Enforcement of NDPS Act:** Regular amendments to ensure stricter penalties and faster judicial processes for drug-related offenses.
4. **Capacity Building of Enforcement Agencies:** Train law enforcement with modern tools, techniques, and intelligence-gathering methods to combat organized crime networks.
5. **Community Engagement and Awareness:** Expand campaigns like Nasha Mukt Bharat Abhiyan to raise awareness and reduce drug abuse, particularly among youth.
6. **Focus on Prevention and Rehabilitation:** Increase investments in rehabilitation centers, vocational training, and community-based programs for de-addiction.
7. **Technological Interventions:** Utilize AI and blockchain for better tracking of drug transactions, and adopt cybersecurity measures to combat darknet trafficking.
8. **Strengthening Financial Monitoring:** Enhance monitoring of illegal financial flows, enforce stringent anti-money laundering (AML) measures, and track drug profits through agencies like ED and FIU.
9. **Public-Private Partnerships:** Foster collaboration between the government, civil society, NGOs, and the private sector for sustainable solutions to drug trafficking.

CONCLUSION

Drug trafficking remains a critical threat to India's national security, societal stability, and economic integrity. It involves complex transnational networks, spanning illicit drug production, distribution, and sale, while also fuelling organized crime, terrorism, and addiction. While the government has made significant strides through legal frameworks, enhanced law enforcement, international cooperation, and public awareness programs, challenges such as porous borders, technological evasion, and political nexus persist. To effectively combat drug trafficking, India must focus on strengthening border security, enhancing inter-agency coordination, and deploying advanced technologies. Furthermore, a multi-faceted approach involving stricter enforcement of ex-

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isting laws, active community participation, and international collaboration is essential. By investing in rehabilitation, awareness campaigns, and financial monitoring, India can curb the growing menace of drug trafficking, ensuring a safer and more secure future for its citizens.

STRENGTHENING PREPAREDNESS: THE ROLE OF CIVIL DEFENCE DRILL IN PUBLIC SAFETY

WHY IN THE NEWS?

The Ministry of Home Affairs has initiated nationwide mock drills, codenamed 'Operation Abhyas', in 244 civil defence districts, following its May 5 directive amid escalating India-Pakistan tensions. The move comes in the wake of the Pahalgam terror attack in Jammu & Kashmir, which claimed 26 lives. These drills simulate hostile scenarios such as air raids, fire emergencies, and mass evacuations, aiming to bolster civilian preparedness and response capabilities. States like West Bengal, Rajasthan, Assam, Punjab, and J&K are most covered under the exercise, highlighting their high threat perception.



WHAT IS A CIVIL DEFENCE DRILL

A civil defence drill is a planned exercise conducted by authorities to test and enhance the preparedness of both civilians and emergency services during potential threats like air raids, terrorist attacks, or disasters. It includes activities such as sounding air-raid warnings, conducting blackouts, camouflaging vital installations, executing evacuation plans, setting up communication hotlines with the armed forces, and activating emergency control rooms. These drills also involve firefighting, rescue operations, and checking the readiness of bunkers and trenches. The goal is to strengthen coordination, identify security gaps, and ensure a quick and organised response during real emergencies.

HISTORY OF CIVIL DEFENCE DRILL

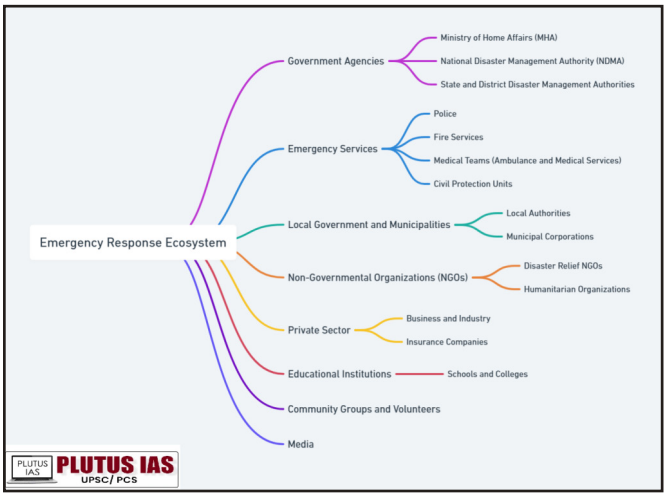
Period/Year	Event/Development	Details
World War II (1939–45)	✧ Introduction of air raid precautions by the British government	✧ Aimed to protect civilians from wartime bombings, an early form of civil defence.
1962	✧ India-China War	✧ Civil defence measures were initiated in major cities amid fear of air strikes.
1965 & 1971	✧ India-Pakistan Wars	✧ Air raid drills, blackouts, and public awareness campaigns conducted in urban areas.
1968	✧ Civil Defence Act enacted	✧ Gave legal backing to organise civil defence activities in peacetime and wartime.
1999	✧ Kargil War	✧ Enhanced vigilance and preparedness in border states; limited drills in civilian areas.
2001	✧ Parliament attack	✧ Civil defence reoriented to include terrorist threat preparedness.

2005 onwards	✧ NDMA establishment	✧ A broader approach included natural disasters; mock drills were incorporated for disaster response.
2008	✧ Mumbai terror attacks	✧ Triggered nationwide mock drills in cities for counter-terror preparedness.
2010	✧ District-level vulnerability assessments initiated	✧ Categorisation of civil defence districts based on strategic and vital installations.
2024–25	✧ Post-Pahalgam terror attack, 'Operation Abhyas' launched	✧ Massive mock drills across 244 districts to test preparedness amid Indo-Pak tensions.

OBJECTIVES OF THE CIVIL DEFENCE DRILL

1. **Enhancing Preparedness:** To ensure that individuals, families, and communities are equipped to respond effectively during disasters, including natural calamities, man-made accidents, or national security threats.
2. **Improving Coordination:** To establish and test the coordination between various emergency services, such as police, fire, medical teams, and military, ensuring smooth communication and cooperation in crisis situations.
3. **Minimising Loss of Life and Property:** To reduce the potential impact of disasters by familiarizing citizens with safety protocols and evacuation plans, thereby minimising casualties and property damage.
4. **Raising Awareness:** To educate the public about safety measures, first aid, emergency evacuation routes, and how to respond in different scenarios, helping to mitigate panic during an actual emergency.
5. **Testing Response Systems:** To evaluate the effectiveness of emergency response systems, including communication networks, resource availability, and overall efficiency during a simulated emergency.
6. **Building Resilience:** To strengthen the ability of communities to bounce back from disasters, focusing on both immediate responses and long-term recovery plans.
7. **Compliance with National Standards:** To ensure that emergency drills align with national disaster management policies and standards, improving the country's overall disaster response capabilities.

STAKEHOLDERS INVOLVED



IMPORTANCE OF CIVIL DEFENCE DRILLS

1. **Enhances Public Awareness:** Educates citizens about emergency procedures, evacuation routes, and first aid, reducing panic during actual crises.
2. **Improves Response Coordination:** Ensures smooth collaboration between emergency services, government agencies, and community members.
3. **Test Emergency Plans:** Helps identify gaps in disaster response plans, communication systems, and resource management.
4. **Reduces Casualties and Damage:** Timely and practised responses help save lives and protect property during disasters.
5. **Builds Community Resilience:** Strengthens the capacity of individuals and communities to cope with and recover from emergencies.
6. **Ensures Policy Compliance:** Validates the effectiveness of government disaster

management strategies and preparedness measures.

7. **Boosts Confidence:** Instils confidence among the public and responders in handling real-life emergencies efficiently.

CHALLENGES IN THE EXECUTION OF SUCH A DRILL

1. **Lack of Public Awareness:** Many citizens are unaware of the purpose or importance of such drills, leading to low participation or confusion.
2. **Poor Coordination Among Agencies:** Inadequate collaboration between emergency services, local authorities, and other stakeholders can hinder effectiveness.
3. **Insufficient Training:** First responders and volunteers may lack proper training or experience, reducing the efficiency of the drill.
4. **Limited Resources and Infrastructure:** Shortage of essential resources like vehicles, communication tools, and shelters can restrict proper execution.
5. **Urban Congestion and Accessibility Issues:** In crowded urban areas, conducting evacuations or rescue operations becomes challenging due to traffic and narrow roads.
6. **Communication Gaps:** Delayed or unclear communication during drills can lead to confusion and ineffective responses.
7. **Resistance from Local Communities:** Some communities may resist participation due to fear, mistrust, or inconvenience.
8. **Lack of Realism:** Drills may not simulate real-life emergency conditions accurately, reducing their practical effectiveness.

WAY FORWARD

1. **Enhance Public Awareness:** Conduct regular awareness campaigns through schools, media, and local bodies to educate people about the importance of drills.
2. **Strengthen Inter-agency Coordination:** Establish clear roles and communication channels among all stakeholders—police, fire services, health departments, and local authorities.
3. **Regular and Realistic Drills:** Conduct drills frequently with realistic scenarios to ensure preparedness under actual emergency conditions.
4. **Capacity Building and Training:** Provide systematic training to first responders, volunteers, and community leaders to improve efficiency.
5. **Community Participation:** Involve local residents in planning and execution to build ownership and enhance responsiveness.
6. **Leverage Technology:** Use digital tools like early warning systems, GIS mapping, and mobile apps to support planning and communication.
7. **Resource Allocation:** Ensure adequate funding, logistics, and infrastructure support for conducting large-scale drills.
8. **Monitoring and Feedback:** After each drill, assess performance, gather feedback, and update disaster management plans accordingly.

CONCLUSION

Civil defence drills are a vital component of a nation's disaster preparedness and internal security framework. In light of rising threats from terrorism, natural disasters, and geopolitical tensions, such as the recent Pahalgam terror attack, initiatives like Operation Abhyas underscore the urgency of proactive planning and community readiness. These drills not only test institutional and community resilience but also foster awareness, coordination, and swift response mechanisms. While challenges such as limited resources, coordination issues, and low public awareness persist, strategic reforms, inclusive participation, and continuous monitoring can significantly enhance their effectiveness. Strengthening civil defence through regular, realistic, and inclusive drills is key to safeguarding lives, infrastructure, and national stability.

THE CHANGING FACE OF WARFARE: KINETIC AND NON-KINETIC DIMENSIONS

WHY IN THE NEWS?

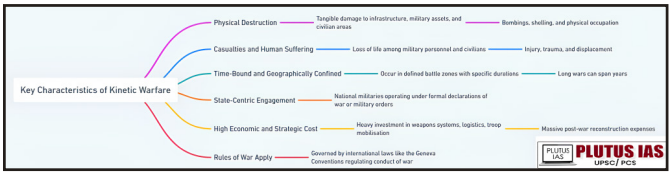
Colonel Sofiya Qureshi's statement on Operation Sindoor highlights a significant development in India-Pakistan relations and military defence strategies. On Thursday, Pakistan reportedly launched 300 to 400 drones, attempting to breach

Indian airspace and target key locations. The Indian armed forces responded with both kinetic and non-kinetic methods, successfully shooting down many of these drones. The incident appears to be a test of India's air defence capabilities and an effort to gather intelligence. Preliminary investigations suggest the drones used were Turkish-made Asisguard Songar drones, raising concerns over the involvement of foreign technology in the operation.

KINETIC WARFARE

Kinetic warfare refers to the use of physical force and violence to achieve military or political objectives. It typically involves the deployment of armed forces and weaponry such as infantry, artillery, tanks, aircraft, naval vessels, and missiles. It is the most traditional and visible form of warfare.

OF KINETIC WARFARE



NON-KINETIC WARFARE

Non-kinetic warfare refers to the use of indirect, non-violent, and non-physical methods to influence, destabilise, or coerce an adversary. It operates across domains such as cyberspace, information, economy, diplomacy, and space without conventional use of weapons or physical combat. This form of warfare is often covert, continuous, and strategic, aiming to weaken a state's functioning, morale, and global standing without engaging in open battle..

SCOPE OF NON-KINETIC WARFARE

Domain	Description	Examples
Cyber Warfare	✧ Disruption or destruction of digital networks and critical infrastructure.	✧ Hacking, ransomware, cyber espionage, and Chinese cyberattacks on Indian servers.
Information Warfare	✧ Manipulation of information to influence public opinion or decision-making.	✧ Fake news, propaganda, deepfakes, Russian interference in U.S. elections.
Economic Warfare	✧ Use of financial tools to weaken a country's economy.	✧ Sanctions, trade embargoes, tech denial; U.S. sanctions on Iran and Russia.
Diplomatic Warfare	✧ Strategic use of diplomacy to isolate or pressure a country.	✧ Expelling diplomats, blocking global alliances; Isolation of North Korea.
Space Warfare	✧ Targeting or jamming of space-based assets like satellites.	✧ Anti-satellite weapons, GPS signal disruption; ASAT tests by major powers.

COMPARATIVE ANALYSIS: KINETIC VS NON-KINETIC WARFARE

Aspect	Kinetic Warfare	Non-Kinetic Warfare
Nature	✧ Physical violence, direct confrontation	✧ Psychological, economic, cyber, diplomatic, or information-based
Means Used	✧ Armed forces, missiles, tanks, bombs	✧ Cyberattacks, propaganda, sanctions, space systems, and coercive diplomacy
Actors	✧ Primarily state militaries	✧ States, non-state actors, hackers, proxy groups

Visibility	✧ Highly visible (media coverage, battlefield action)	✧ Often covert, difficult to detect or attribute
Impact	✧ Immediate physical destruction and casualties	✧ Long-term strategic destabilisation, societal or economic erosion
Cost	✧ High financial, human, and material costs	✧ Lower immediate cost, but potential for massive long-term consequences
Duration	✧ Generally time-bound and geographically limited	✧ Continuous or prolonged without a formal declaration of war
Legal Framework	✧ Governed by international humanitarian laws (e.g., the Geneva Conventions)	✧ Often falls in legal grey zones; lacks clear international regulation

IMPLICATIONS FOR NATIONAL SECURITY

1. **Multi-Domain Threats:** Warfare now spans land, air, sea, cyber, space, and information, demanding integrated defence strategies.
2. **Cybersecurity Priority:** Over 1.3 million cyberattacks in India (2022) highlight the need for robust cyber defence (e.g., Defence Cyber Agency).
3. **Information Manipulation:** Disinformation can erode public trust and stability; counter-strategies are essential.
4. **Economic Resilience:** Overdependence on imports (e.g., $20B Chinese electronics) poses risk; Atmanirbhar Bharat is critical.
5. **Space Vulnerabilities:** With 50+ Indian satellites, protection from ASAT threats is a strategic necessity.
6. **Attribution Challenge:** Cyber attacks are hard to trace, complicating retaliation and response.
7. **Asymmetric Threats:** Drones and malware by non-state actors demand advanced surveillance and legal frameworks.
8. **Continuous Conflict:** Non-kinetic warfare persists in peacetime, requiring 24/7 vigilance and preparedness.

CHALLENGES TO MITIGATING KINETIC AND NON-KINETIC

1. **Attribution Difficulties (Non-Kinetic):** Cyber and information attacks are often anonymous, making retaliation or legal action complex.
2. **Legal and Ethical Grey Zones:** International laws lag behind in regulating cyber, space, and info warfare, leading to unchecked actions.
3. **Rapid Technological Advancement:** Emerging tech (AI, deepfakes, drones) evolves faster than defense capabilities and regulatory frameworks.
4. **Asymmetric Warfare Tactics:** Non-state actors and smaller nations can inflict high damage using low-cost non-kinetic tools (e.g., cyberattacks, drones).
5. **Resource and Infrastructure Gaps:** Many countries lack the skilled manpower, infrastructure, or funds to defend against complex, hybrid threats.
6. **Civil-Military Coordination Deficits:** Effective mitigation requires real-time coordination between military, intelligence, civilian agencies, and private tech firms.
7. **Dependence on Foreign Technologies:** Over-reliance on foreign defence and digital tech increases vulnerability to supply chain sabotage or espionage.
8. **Public Awareness and Preparedness:** Low media literacy and awareness among citizens make societies more susceptible to propaganda and disinformation.

WAYS TO STRENGTHEN KINETIC AND NON-KINETIC WARFARE METHODS FOR INDIA

1. Modernise Armed Forces (Kinetic): Invest in next-gen weapons, indigenous defence production, and joint theatre commands.

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Accelerate projects like Agni-V, Tejas, and INS Vikrant for strategic deterrence.

2. **Boost Cyber Capabilities (Non-Kinetic):** Expand the role of the Defence Cyber Agency and collaborate with CERT-In and private tech firms. Develop offensive and defensive cyber tools with real-time response capacity.
3. **Strengthen Space & Satellite Security:** Secure India's 50+ satellites; scale up ASAT and anti-jamming capabilities. Develop space situational awareness (SSA) infrastructure.
4. **Develop Information Warfare Units:** Establish dedicated units to combat fake news, deepfakes, and psychological warfare. Promote media literacy and fact-checking ecosystems.
5. **Enhance Economic Resilience:** Reduce dependence on strategic imports (e.g., electronics, semiconductors) through PLI schemes and Atmanirbhar Bharat. Build buffer stocks and diversify critical supply chains.
6. **Strengthen Civil-Military Synergy:** Improve coordination between armed forces, intelligence, tech startups, and academia. Set up Integrated Defence Innovation Hubs.
7. **Invest in AI and Quantum Technologies:** Promote research in AI-enabled surveillance, predictive defence, and encryption. Collaborate with institutions like DRDO, ISRO, and IITs.
8. **Legal and Policy Reforms:** Frame clear cyber laws, data protection legislation, and counter-disinformation regulations. Push for global norms on non-kinetic warfare (e.g., cyber ethics, space rules).

CONCLUSION

Modern warfare has evolved beyond traditional battlefields into complex, multi-domain confrontations involving both kinetic and non-kinetic strategies. While physical warfare still poses direct threats, non-kinetic means such as cyberattacks, propaganda, and economic coercion have become equally potent tools of national influence and disruption. For a country like India, strengthening both dimensions through technological self-reliance, robust cyber and space infrastructure, legal reforms, and civil-military synergy is essential. A future-ready defence strategy must integrate hard power with smart, adaptive, and proactive measures to safeguard national sovereignty and security in an era of continuous and covert conflict.

PRELIMS QUESTIONS

1. Consider the following statements about terrorism in India:

1. The National Investigation Agency (NIA) was constituted under the Unlawful Activities (Prevention) Act (UAPA).
2. The Multi-Agency Centre (MAC) is responsible for intelligence coordination among cen-tral and state agencies.
3. The 26/11 Mumbai attacks were carried out by Jaish-e-Mohammed.

Which of the above statements is/are correct?

(a) 1 and 2 only (b) 2 only
(c) 1 and 3 only (d) 1, 2 and 3

2. Which of the following statements are correct about the Red Corridor in India?

1. It refers to areas affected by Left-Wing Extremism (LWE).
2. The Red Corridor spans only across the northeastern states of India.
3. The Government has launched the "SAMADHAN" strategy to tackle LWE in this region.

Select the correct answer using the code given below:

(a) 1 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2, and 3

3. Consider the following statements regarding Civil Defence Drills in India:

1. Civil Defence in India is governed by the Civil Defence Act, 1968.
2. The National Disaster Management Authority (NDMA) is the primary agency conduct-ing civil defence drills across the country.
3. Operation Abhyas is a recent initiative aimed at testing preparedness against cyber threats only.

Which of the above statements is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

4. With reference to the changing dimensions of warfare, consider the following state-ments:

1. Kinetic warfare involves indirect methods such as cyberattacks, economic sanctions, and information warfare.
2. Non-kinetic warfare includes physical force, such as the use of tanks, missiles, and armed forces.
3. Information warfare can be used to manipulate public opinion and decision-making, often through tactics like fake news and propaganda.

How many of the above-given statements are correct?

(a) Only one (b) Only two
(c) All three (d) None

ANSWER-KEY

1. (b)	2. (b)	3. (a)	4. (a)

MAINS QUESTIONS

1. Terrorism poses a persistent threat to India's internal security and global image. Ana-lyse the challenges faced in tackling terrorism in India. What measures have been taken by the government to counter this threat? Suggest further steps to strengthen the na-tional response.

(250 words, 15 marks)

2. "Drug trafficking in India poses a severe threat to national security, social stability, and the economy. Discuss the challenges and the measures the government is undertaking to tackle this menace."

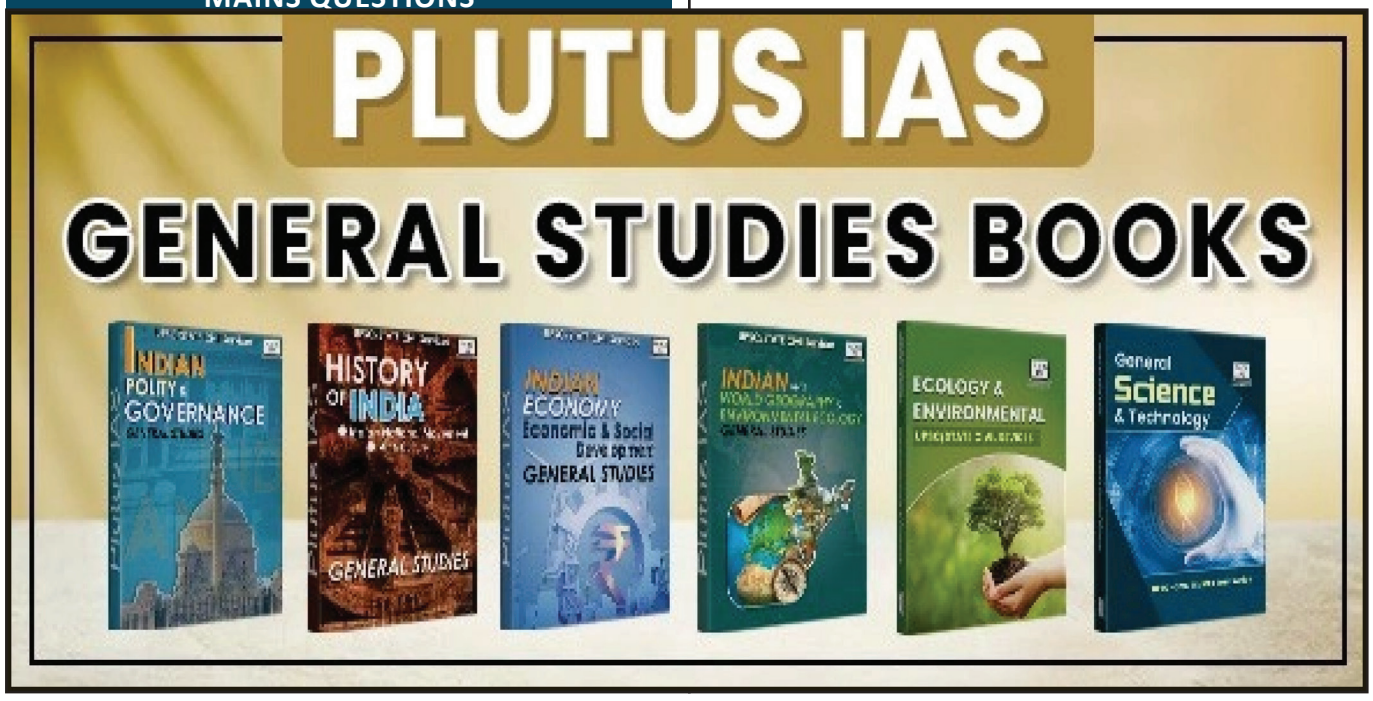
(250 words, 15 marks)

3. In the wake of increasing security threats and natural disasters, civil defence drills have become crucial for national preparedness. Discuss the significance, challenges, and the way forward for conducting effective civil defence drills in India

(250 words, 15 marks)

4. Discuss the implications of this shift in warfare for national security, particularly for India. Also, outline strategies that India can adopt to strengthen its defence capabilities in both kinetic and non-kinetic warfare domains.

(250 words, 15 marks)

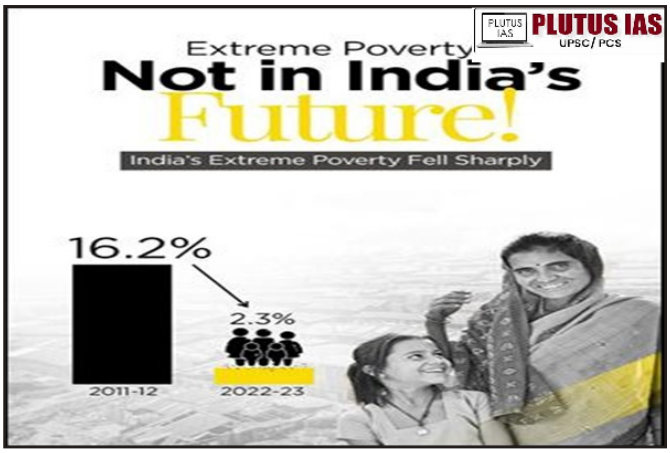




OVER 17 CRORE LIFTED FROM EXTREME POVERTY IN 10 YEARS

WHY IN THE NEWS?

India has made remarkable progress in poverty reduction, lifting over 17.1 crore people out of extreme poverty in the last decade. According to the World Bank's Spring 2025 Poverty and Equity report, five states — Uttar Pradesh, Maharashtra, Bihar, West Bengal, and Madhya Pradesh — were responsible for two-thirds of this overall decline in extreme poverty. In rural areas, extreme poverty dropped from 18.4% in 2011-12 to 2.8% in 2022-23, while urban areas saw a reduction from 10.7% to 1.1% during the same period.



The report highlighted positive trends in employment growth, particularly since 2021-22. Additionally, it pointed out the rise in self-employment, especially among rural workers and women, as a key driver of economic participation and inclusion. These trends reflect India's continued efforts and commitment to poverty alleviation through various government schemes and initiatives.

POVERTY & POVERTY DATA IN INDIA

Extreme poverty is commonly defined by the World Bank as living on less than $2.15 per day (as of 2022). In the Indian context, it reflects severe deprivation of basic human needs like food, safe drinking water, shelter, and education. It also implies a lack of access to opportunities for upward mobility.According to World Bank data (2023), extreme poverty in India fell to below 3%. This marks a sharp decline from around 12% in 2011, indicating substantial improvement over the last decade.While rural poverty has declined, it remains higher than urban poverty due to agricultural distress and poor infrastructure. Urban poverty, though less prevalent, is concentrated in slums and informal sectors, where living conditions are harsh. States like Bihar, Uttar Pradesh, and Jharkhand have higher poverty rates, while Kerala and Himachal Pradesh have lower rates. These disparities are due to variations in governance, education levels, and access to welfare schemes. India's MPI score has improved significantly. The index considers health, education, and living standards, offering a more holistic picture than income-based measures. The NSSO's consumption surveys remain a primary tool to assess poverty trends. The recent 2022–23 survey indicates increased spending on essentials, suggesting reduced poverty. Despite progress, India still houses one of the largest absolute numbers of poor people globally. However, its poverty reduction pace is one of the fastest among major economies.

STATE-WISE POVERTY DATA

State/UT	*Estimated Poverty Rate (%)	Remarks
Bihar	33.7%	✧ Highest MPI poverty, weak infrastructure & services
Jharkhand	28.9%	✧ High rural poverty, tribal population vulnerable
Uttar Pradesh	22.9%	✧ Large population, slow human development progress
Madhya Pradesh	20.6%	✧ Pockets of chronic poverty in rural areas
Chhattisgarh	19.5%	✧ Tribal areas lack access to education & healthcare
Odisha	17.1%	✧ Rapid improvement, but still high MPI index
Rajasthan	13.9%	✧ Urban-rural divide persists
West Bengal	11.5%	✧ Improvement in urban areas, rural challenges remain
Assam	10.3%	✧ Flood-prone areas suffer repeated economic losses
Maharashtra	7.2%	✧ Urban poverty exists in slums despite growth
Tamil Nadu	6.2%	✧ Strong welfare programs helped reduce poverty
Himachal Pradesh	5.1%	✧ Better health and education access
Kerala	2.4%	✧ Lowest poverty, high HDI, strong social indicators

TYPES OF POVERTY

1. **Absolute Poverty:** Refers to a fixed economic threshold below which individuals cannot meet basic life necessities. It is most relevant for policies targeting hunger, shelter, and healthcare. This type of poverty is measured using international standards, such as the World Bank's $2.15/day threshold, making it easier to track global progress.
2. **Relative Poverty:** Focuses on economic inequality and how individuals fare in comparison to others in their society. It's particularly significant in urban areas where economic disparity is more visible. Relative poverty affects social cohesion and often leads to exclusion from mainstream opportunities in education and employment.
3. **Urban Poverty:** Characterized by lack of housing, sanitation, and secure jobs in cities. Migrant workers, slum dwellers, and informal sector workers are the most affected. Rapid urbanization without adequate infrastructure worsens the living conditions and leads to overcrowding in urban slums.
4. **Rural Poverty:** Linked to low agricultural productivity, limited access to education and healthcare, and indebtedness. Many rural families depend on seasonal jobs or public work schemes like MGNREGA. Rural poverty is often exacerbated by poor connectivity and weak market linkages, hindering economic mobility.
5. **Chronic Poverty:** Long-term poverty that persists across generations due to systemic barriers like caste discrimination, illiteracy, and social exclusion. It is hardest to eradicate as it becomes entrenched in communities, leading to intergenerational transmission of deprivation.

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6. **Situational Poverty:** Occurs due to a sudden crisis like natural disasters, pandemic, or job loss. For instance, the COVID-19 lockdown pushed many into temporary poverty. Though often temporary, its effects can be long-lasting without sufficient social safety nets or support systems.
7. **Multidimensional Poverty:** Captures the complex realities of poverty by combining income with access to education, healthcare, housing, and sanitation. It provides a more realistic measure of well-being and helps target interventions more precisely in different regions.

REASONS BEHIND DECLINE IN EXTREME POVERTY IN INDIA

1. **Economic Growth:** Rapid GDP growth over the last two decades created jobs and improved incomes. Sectors like services and manufacturing contributed significantly to upward mobility. For example, the IT and BPO boom in cities like Bengaluru and Hyderabad offered employment to millions, lifting families above the poverty line.
2. **Social Welfare Schemes:** Government programs like the Public Distribution System (PDS), MGNREGA, and PM-KISAN ensured food and income security. These helped in insulating the poor from economic shocks. The PM-Garib Kalyan Anna Yojana during COVID-19 ensured free ration to over 800 million people, preventing a spike in hunger.
3. **Expansion of Infrastructure:** Roads, electricity, and telecommunication networks have expanded rural connectivity. This improved access to markets, education, and healthcare. The Pradhan Mantri Gram Sadak Yojana (PMGSY) has linked remote villages to nearby towns, boosting rural commerce and employment.
4. **Financial Inclusion:** Schemes like Jan Dhan Yojana and UPI enabled the poor to access formal banking, save money, and receive DBT (direct benefit transfers) without leakages. As of 2024, over 50 crore Jan Dhan accounts have been opened, making India one of the most financially included nations globally.
5. **Improved Education and Skill Development:** Literacy rates and school enrollment have improved, especially among girls. Skill India Mission has provided vocational training to millions. Programs like Beti Bachao, Beti Padhao and digital classrooms in rural schools have increased female literacy and employability.
6. **Rural Employment Programs:** MGNREGA provided wage employment during lean agricultural periods. It not only supported income but also helped create durable assets like roads and ponds. For instance, in drought-prone Bundelkhand, MGNREGA-funded water harvesting structures have improved water access and farm output.

WHY POVERTY IS STILL PREVALENT IN INDIA

1. **Unemployment and Underemployment:** Many people still lack formal, secure jobs. Even those employed in informal sectors earn wages below living standards, perpetuating poverty. The gig economy, though growing, often lacks social security and long-term stability, leading to economic vulnerability for workers.
2. **Agricultural Distress:** Over 50% of India's workforce still depends on agriculture, which suffers from low productivity, erratic monsoons, and price volatility. Small and marginal farmers, who form the majority, often rely on high-interest loans and face mounting debt due to crop failures or low returns.
3. **Regional Disparities:** Development is concentrated in a few states and metro cities. Backward states lack investment in infrastructure, education, and healthcare. States like Bihar and Odisha lag significantly in per capita income and human development indicators compared to states like Gujarat or Maharashtra.
4. **Social Inequality:** Caste, gender, and religious biases hinder access to opportunities. Marginalized communities face systemic discrimination in jobs, education, and land rights. Women, particularly in rural areas, continue to face barriers in employment and financial independence, limiting their family's economic potential.

5. **Inflation and Rising Living Costs:** While incomes have risen, so have prices of essentials like food, rent, and education. This erodes the purchasing power of the poor. Recent food inflation spikes have made basic nutrition unaffordable for many, forcing families to compromise on quality meals.
6. **Urban Slums:** Rapid urbanization has led to mushrooming of slums with poor living conditions. Slum dwellers lack sanitation, electricity, and legal housing rights. Cities like Mumbai and Delhi house millions in informal settlements, often without access to clean water or primary healthcare.
7. **Digital and Information Divide:** Despite the digital revolution, many poor people lack access to devices, connectivity, and digital literacy, which limits their growth potential. Rural students and workers often miss out on online education and job opportunities due to poor internet infrastructure and affordability issues.

GOVERNMENT MEASURES TO ALLEVIATE POVERTY IN INDIA

1. **MGNREGA:** Guarantees 100 days of wage employment annually to rural households. It has been a lifeline during lean seasons and crises like COVID-19.As of April 2025, over 7.5 crore households have availed employment under the scheme in the FY 2024–25, with an average of 52 days of work provided per household.
2. **PMAY (Pradhan Mantri Awas Yojana):** Aims to provide affordable housing to urban and rural poor by 2024. Over 3.1 crore homes have been sanctioned across both rural and urban components. By early 2025, about 2.7 crore houses have already been constructed and handed over to beneficiaries, boosting rural asset creation and women's ownership.
3. **National Food Security Act (NFSA):** Provides subsidized food grains to nearly 800 million people. The PM Garib Kalyan Anna Yojana expanded its reach during the pandemic. From January 2023 onwards, the Centre made distribution of 5 kg free food grains per person per month a permanent provision under NFSA.
4. **PM-KISAN:** Offers income support of ₹6,000 per year to farmers. This helps meet input costs and provides a financial cushion against crop failure. As of April 2025, over 11 crore farmers have benefited from the scheme since its launch in 2019, with the 16th installment paid in March 2025.
5. **Ayushman Bharat – PM-JAY:** Offers health insurance cover of ₹5 lakh per family per year for secondary and tertiary care, benefiting low-income households. By 2025, the scheme has issued more than 28 crore Ayushman cards, with over 6.1 crore hospital admissions recorded under the initiative.
6. **Skill India Mission:** Aims to train youth in market-relevant skills. Over 1.5 crore people have been trained as of April 2025 under programs like PMKVY and National Apprenticeship Promotion Scheme (NAPS). Recent focus has shifted toward emerging sectors such as AI, robotics, and green energy skills.
7. **Digital India and Jan Dhan Yojana:** Promote digital and financial inclusion. This helps in ensuring government subsidies reach the right beneficiaries directly. As of April 2025, over 50.7 crore Jan Dhan accounts have been opened, and over 90% are Aadhaar-seeded, enabling smooth and transparent DBT transfers.

RECOMMENDATIONS

1. **Focus on Job Creation:** Invest in labor-intensive sectors like textiles, tourism, construction, and agro-processing to create employment at scale, especially for semi-skilled youth. Government-led production-linked incentive (PLI) schemes should be leveraged to boost manufacturing jobs. Start-ups in Tier 2 and Tier 3 cities can also be incentivized for local employment generation.
2. **Improve Quality of Education:** Focus on foundational literacy and numeracy in primary schools. Upgrading school infrastructure, digital learning tools, and regular teacher training is crucial for long-term poverty alleviation. National Education Policy (NEP) implementation must prioritize rural and tribal belts, where dropout rates remain high and quality of instruction is poor.

3. **Strengthen Healthcare Access:** Expand public healthcare infrastructure and ensure availability of essential medicines and diagnostics in rural areas. Strengthening primary health centres (PHCs), mobile health units, and telemedicine can help bridge the rural-urban health divide.
4. **Agricultural Reforms:** Promote crop diversification, invest in irrigation infrastructure, and ensure Minimum Support Price (MSP) implementation to improve farmers' income sustainably. Farmer Producer Organizations (FPOs) should be supported to improve access to markets, credit, and technology.
5. **Urban Poor Welfare:** Introduce schemes targeted at urban slum dwellers for housing, sanitation, waste management, and skill development. Urban poverty needs specific interventions beyond generic schemes. Affordable rental housing and regularization of informal settlements can improve living standards of migrant workers.
6. **Targeted Social Protection:** Use data analytics, Aadhaar-based platforms, and SECC data to better target subsidies and welfare schemes, ensuring leak-proof delivery. Dynamic beneficiary databases and grievance redress mechanisms can enhance efficiency and responsiveness.

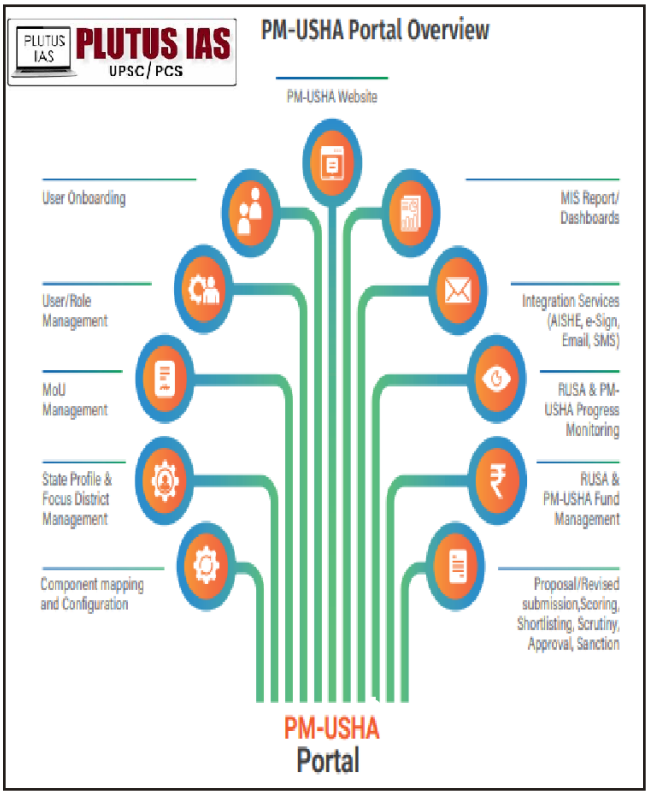
CONCLUSION

India has made remarkable strides in reducing extreme poverty, lifting millions above the poverty line in just two decades. Despite gains, poverty persists in certain pockets due to regional inequality, social exclusion, and systemic inefficiencies. Sustained poverty reduction requires inclusive economic growth, focusing on education, health, and skilling the underprivileged.Climate change poses a rising threat to livelihoods, especially in agriculture, necessitating resilient development strategies. India's poverty reduction model is being closely watched by other developing nations for its scale and speed.Leveraging digital platforms for service delivery and data management can enhance the efficiency of poverty alleviation programs. Ending poverty by 2030 is a key Sustainable Development Goal (SDG). India must maintain momentum through coordinated efforts at all levels.

PM-USHA: PRADHAN MANTRI UCHCHATAR SHIKSHA ABHIYAN

WHY IN THE NEWS?

The Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) was in the news due to a two-day National Workshop on Multidisciplinary Education and Research Universities (MERU) held on April 30–May 1, 2025, at ICAR, New Delhi. Attended by 64 Vice Chancellors and State Project Directors, the event focused on implementing NEP 2020 reforms. The Ministry of Education announced ₹100 crore each for 35 universities to execute 44 MERU-linked activities. Twelve sessions covered topics like UGC regulations, clustering, skill integration, and industry collaboration. The workshop emphasized strengthening accessibility, research, and quality in state-funded higher education institutions across India.



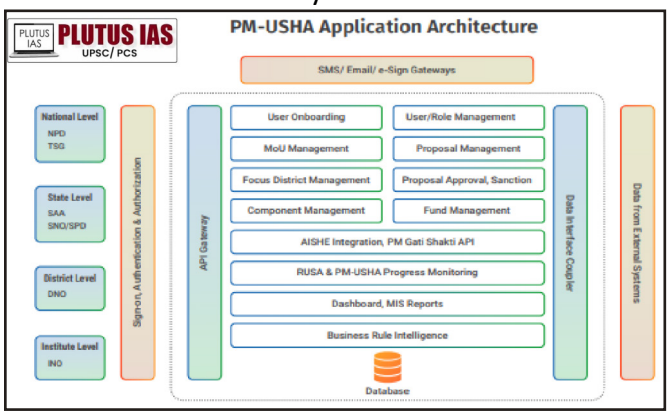
WHAT IS PM-USHA?

The Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) is a centrally sponsored scheme launched by the Government of India to strengthen and transform the higher education system in the

country. It is the revamped version of the Rashtriya Uchchatar Shiksha Abhiyan (RUSA), aligning with the vision of the National Education Policy (NEP) 2020. PM-USHA aims to improve access, equity, and quality in higher education through systemic reforms, infrastructural development, and academic excellence.

DATA ON HIGHER EDUCATION IN INDIA

1. **Rise in Total Enrolment:** According to AISHE 2023–24 (released in early 2025), total enrolment in higher education crossed 4.5 crore students, up from 3.85 crore in 2019–20. This reflects consistent annual growth and expansion of access, particularly in semi-urban and rural areas.
2. **Increased Participation of Marginalized Groups:** Enrolment of Scheduled Castes (SCs) and Scheduled Tribes (STs) has steadily improved. In 2023–24, SC student enrolment stood at 73 lakh, while ST enrolment reached 33 lakh, marking significant gains under inclusive schemes like PM-USHA.
3. **Growing Presence of Women:** Women now represent 49% of total enrolments in higher education. Female enrolment in STEM (Science, Technology, Engineering, Mathematics) courses has also risen, indicating success in gender-targeted initiatives and scholarships.
4. **Expansion of Private Sector:** Private institutions account for over 65% of colleges and nearly 50% of total enrolments. While they contribute to access, concerns remain about regulation, affordability, and consistent academic standards across private entities.
5. **Disparities Among States:** States like Kerala, Tamil Nadu, and Himachal Pradesh report GER above 40%, while states like Bihar and Uttar Pradesh still lag behind with GER below 25%. This regional inequality in access to higher education continues to be a major policy challenge.
6. **Faculty Shortages Persist:** As of 2025, over 30% of faculty positions in public universities remain vacant. Ad-hoc hiring and contractual appointments have become common, affecting the quality of teaching and research output in state institutions.
7. **Limited Global Recognition:** In the 2024 QS World University Rankings, only 8 Indian institutions featured in the top 500 globally. Most state universities continue to struggle with research funding, international collaborations, and innovation ecosystems.



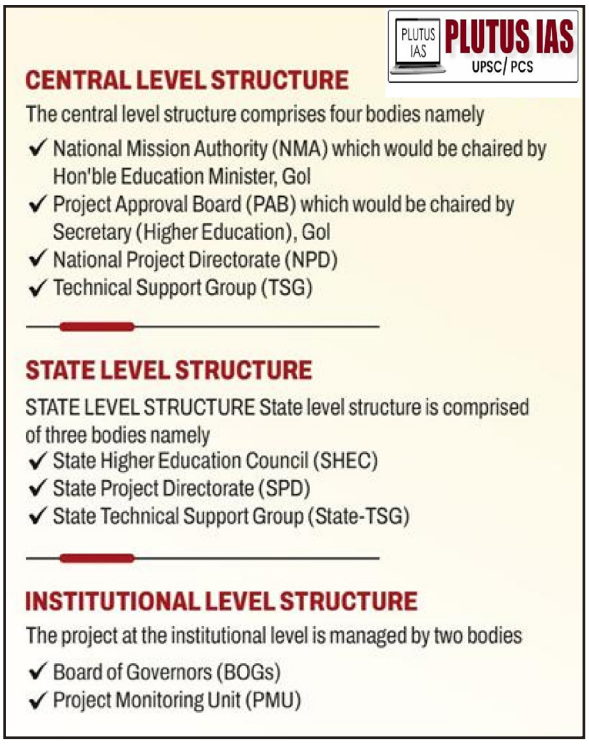
OBJECTIVES OF PM-USHA

1. **Implementation of NEP 2020 in Higher Education:** The NEP 2020 aims to transform India's higher education landscape by promoting multidisciplinary learning, research, and digital integration. As of May 2025, significant strides have been made in aligning higher education institutions with NEP objectives. For instance, the introduction of the Academic Bank of Credits (ABC) facilitates student mobility and flexible learning pathways across institutions. Additionally, the establishment of the National Digital University (NDU) provides accessible online education, catering to diverse learner needs.
2. **Promotion of Equity, Access, and Excellence in State-Funded Institutions:** To enhance inclusivity and quality in state-funded institutions, the Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) was launched. With an outlay of ₹12,926.10 crore for 2023–26, the scheme supports infrastructure development, faculty recruitment, and academic reforms. By May 2025, 33 States and Union Territories have signed Memorandums of Understanding (MoUs) under PM-USHA, leading to the approval of 440 projects with a total funding of ₹5,613.12 crore.
3. **Facilitation of Multidisciplinary Education, Research, and Employability:** NEP 2020 emphasizes the importance of multidisciplinary

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education to foster holistic learning and enhance employability. In alignment with this, the government has initiated the transformation of single-stream institutions into Multidisciplinary Education and Research Universities (MERUs). These institutions integrate diverse fields of study, encouraging interdisciplinary research and innovation. Furthermore, the establishment of research parks and innovation hubs in premier institutions like IITs and IISc supports industry-academia collaboration, driving research and skill development.

4. **Encouragement of Digital Learning and Academic Reforms:** Digital learning has been a cornerstone of NEP 2020's implementation strategy. Platforms like SWAYAM and DIKSHA have expanded their reach, offering a plethora of online courses and resources. As of May 2025, SWAYAM hosts over 1,900 courses, benefiting more than 1.56 crore learners. Additionally, the One Nation One Subscription (ONOS) scheme provides access to over 13,000 journals for more than 6,300 academic and research institutions, fostering a robust research ecosystem.
5. **Support for Autonomous and Well-Governed Institutions:** To promote institutional autonomy and effective governance, NEP 2020 advocates for the establishment of Independent Boards of Governors in higher education institutions. This initiative empowers institutions to make academic and administrative decisions, fostering innovation and accountability. Moreover, the National Accreditation Council (NAC) has been proposed to oversee the accreditation process, ensuring quality standards across institutions. These measures aim to create a more responsive and dynamic higher education system.
6. **Integration of Indian Knowledge Systems (IKS) and Multilingual Education:** NEP 2020 emphasizes the inclusion of Indian Knowledge Systems (IKS) and the promotion of multilingual education. The University Grants Commission (UGC) has launched initiatives to integrate IKS into curricula, with a target to train 1.5 million teachers in IKS by 2025. Additionally, national-level entrance examinations like JEE (Main), NEET (UG), and CUET (UG) are now conducted in 13 languages, including regional languages, enhancing accessibility and inclusivity in higher education.



SCOPE AND COVERAGE

1. **Comprehensive Coverage of State Institutions:** PM-USHA encompasses all government and government-aided state universities and their affiliated colleges across India. The scheme targets over 300 state universities and 10,000+ colleges, aiming to enhance the quality and accessibility of higher education nationwide.
2. **Focus on Aspirational and Underserved Districts:** The scheme prioritizes Focus Districts, identified by states/UTs based on criteria such as low Gross Enrolment Ratio (GER), gender disparities, and high populations of SC/ST/OBC communities. Up to 50% of a state's districts can be designated as Focus Districts, ensuring targeted interventions in areas like Bhadrak, Kandhamal, Mayurbhanj, Nabarangpur, and Sambalpur in Odisha.
3. **Support for Accreditation and Quality Enhancement:** Institutions participating in national accreditation and ranking frameworks, such as NAAC, NBA, and NIRF, are eligible for support under PM-USHA. This encourages a culture of quality assurance and continuous

improvement, aligning with the scheme's emphasis on enhancing educational standards.

4. **Promotion of Multidisciplinary Education and Research:** PM-USHA supports the transformation of traditional single-stream institutions into Multidisciplinary Education and Research Universities (MERUs). For instance, in Odisha, universities like Ravenshaw University and Sambalpur University received ₹100 crore each to develop multidisciplinary programs and research facilities.
5. **Emphasis on Equity and Inclusion:** The scheme places a strong emphasis on promoting equity and inclusion in higher education. Initiatives include the establishment of Gender Inclusion and Equity Initiatives (GIEI), with districts like Bhadrak and Kandhamal receiving ₹10 crore each to support infrastructure and programs that enhance access for women and marginalized communities.

COMPONENTS AND ACTIVITIES

1. **Enhancing Teaching-Learning Environment:** PM-USHA prioritizes faculty development through initiatives like the Annual Refresher Programme in Teaching (ARPIT), which has trained over 15 lakh higher education faculty via the SWAYAM platform. Additionally, the National Initiative for Technical Teachers Training (NITTT) offers eight-module online training for teachers in AICTE-approved institutions, enhancing pedagogical skills and curriculum delivery.
2. **Accreditation and Quality Reforms:** To improve institutional quality, PM-USHA supports higher education institutions (HEIs) in obtaining NAAC and NBA accreditations. Participation in national and international rankings, such as NIRF and QS, is encouraged. The Akhil Bhartiya Shiksha Samagam 2024 emphasized the importance of research output and data quality in enhancing rankings, aiming for 10 Indian HEIs in the top 100 globally by 2047.
3. **Research and Innovation Support :** The scheme allocates funds for establishing research centers and innovation hubs. Three Centers of Excellence focusing on health, sustainable cities, and agriculture have been approved with a financial outlay of ₹990 crore for 2023–28. Additionally, research parks have been established in institutions like IIT Delhi, IIT Kanpur, and IISc Bangalore to foster industry-academia collaboration.
4. **Digital and Online Learning:** PM-USHA enhances digital infrastructure by integrating platforms like SWAYAM and DIKSHA. SWAYAM PRABHA, a group of 32 DTH channels, broadcasts educational content 24/7, ensuring wider access to quality education.
5. **Governance and Autonomy:** The scheme promotes governance reforms by encouraging HEIs to adopt autonomous models, facilitating academic and administrative flexibility. Workshops and consultative meetings have been organized to discuss reforms in assessment, accreditation, and ranking, aiming to empower institutions with greater decision-making capabilities.
6. **Equity and Inclusion Measures:** PM-USHA emphasizes inclusivity by providing scholarships and support centers for marginalized groups. Platforms like DIKSHA offer accessible educational resources, including content in Indian Sign Language and materials compliant with Web Content Accessibility Guidelines (WCAG) 2.0, ensuring education for all learners.

ISSUES WITH HIGHER EDUCATION IN INDIA

1. **Quality and Accreditation Deficit:** As of January 2025, approximately 30% of India's higher education institutions remain unaccredited, indicating significant gaps in quality assurance and adherence to educational standards. The high costs associated with the accreditation process have been a barrier for many institutions, particularly in the public sector.
2. **Persistent Faculty Shortages:** Faculty vacancies are a pressing issue, with 40% of positions unfilled in Indian Institutes of Technology (IITs) and 31% in Indian Institutes of Management (IIMs). This shortage hampers the quality of education and research output, particularly in public institutions.
3. **Employability Concerns:** The Economic Survey 2024–25 highlights that only 8.25% of graduates are employed in roles matching

their qualifications, underscoring a significant skills mismatch. Over 50% of graduates are underemployed in low-skill jobs, reflecting inadequacies in vocational training and industry-aligned education.

4. **Regional Disparities in Access:** There is a stark contrast in Gross Enrolment Ratios (GER) across regions. For instance, Sikkim boasts a GER of 43.77%, while the East zone averages at 22.07%, significantly below the national average of 28.4%. These disparities highlight uneven access to higher education across different states.
5. **Limited Research Output:** India's contribution to global research publications has increased to 5.2% in 2024, up from 3.5% in 2017. However, this growth is primarily driven by elite institutions like IITs and select private universities, with many state universities lagging due to limited funding and infrastructure.
6. **Governance and Autonomy Challenges:** Recent regulatory proposals, such as the Draft UGC Regulations 2025, have raised concerns about increased centralization and potential erosion of academic freedom. Critics argue that such measures may stifle innovation and institutional autonomy.
7. **Underinvestment in Education:** India's public expenditure on education remains at approximately 3.5% of GDP, falling short of the 6% recommended by the Kothari Commission. This underinvestment affects the expansion and quality enhancement of higher education institutions.

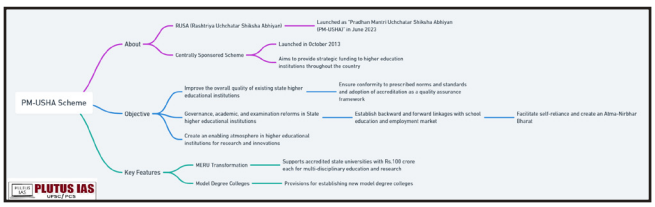
WAY FORWARD

1. **Ensure Timely Fund Release and Utilization:** States must ensure prompt release and full utilization of central grants under PM-USHA. A real-time fund tracking system should be adopted to enhance accountability and minimize delays in project execution.
2. **Promote Faculty Development:** Recruitment of qualified faculty should be prioritized, along with continuous professional development programs. Incentives for research output, pedagogical innovation, and digital teaching proficiency can boost academic excellence.
3. **Strengthen Accreditation Mechanisms:** Institutions must be incentivized to secure NAAC accreditation and participate in NIRF rankings. Linking funding to performance metrics will create a culture of quality assurance and data-driven governance.
4. **Foster Research Culture:** Seed funding should support interdisciplinary and socially relevant research projects. Collaborations with industry and international institutions can help bridge India's research–innovation gap.
5. **Encourage Multidisciplinary Institutions:** The restructuring of higher education institutions into large, autonomous multidisciplinary universities should be fast-tracked. This will improve academic flexibility, reduce fragmentation, and align with NEP 2020.
6. **Digital Inclusion:** Bridge the digital divide by providing subsidized devices, high-speed internet, and digital literacy training. This will empower students from rural and marginalized backgrounds to fully engage in hybrid learning models.
7. **Strengthen State-Level Education Governance:** States should establish dedicated higher education councils to oversee reforms, streamline regulation, and foster innovation. Effective state-level leadership is essential for the success of national schemes like PM-USHA.

CONCLUSION

PM-USHA is a timely and comprehensive initiative aimed at reimagining India's higher education landscape in line with global standards and NEP 2020. By focusing on quality, inclusivity, and innovation, it has the potential to transform state universities into vibrant centers of learning and research. However, effective implementation, political will, and stakeholder cooperation will be key to realizing its full impact.

MINDMAP:



INDIA'S HEALTH MILESTONE: MATERNAL AND CHILD MORTALITY RATES ON A DECLINE

WHY IN THE NEWS?

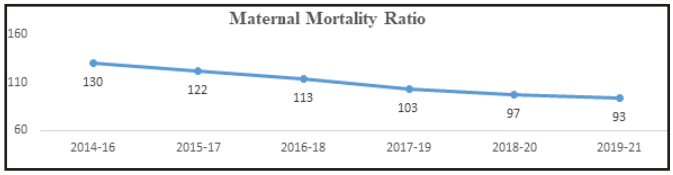
The Registrar General of India (RGI) has released the Sample Registration System (SRS) Report 2021, highlighting a significant improvement in India's maternal and child health indicators. As per the Special Bulletin on Maternal Mortality in India (2019–21), the Maternal Mortality Ratio (MMR) has declined from 130 per lakh live births in 2014–16 to 93 in 2019–21. Similarly, key child health indicators such as Infant Mortality Rate (IMR), Neonatal Mortality Rate (NMR), and Under-Five Mortality Rate (U5MR) have all shown a notable decline. The Sex Ratio at Birth has improved, and the Total Fertility Rate (TFR) has reached replacement level at 2.0. These trends indicate steady progress in India's public health outcomes and the effectiveness of maternal and child health interventions.

WHAT IS CHILD MORTALITY AND MATERNAL MORTALITY?

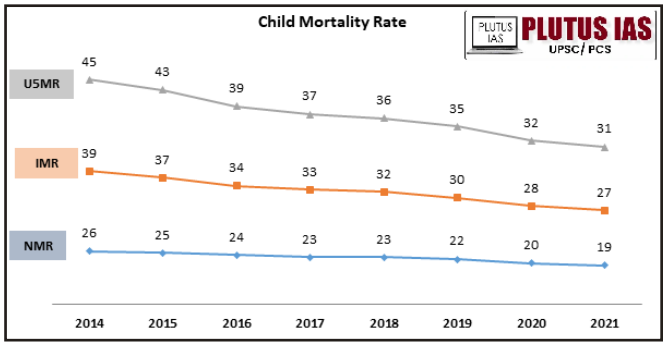
Aspect	Child Mortality	Maternal Mortality
Definition	✧ Death of children under the age of five.	✧ Death of a woman during pregnancy or within 42 days of termination of pregnancy.
Key Indicator	✧ Under-Five Mortality Rate (U5MR) – deaths per 1,000 live births.	✧ Maternal Mortality Ratio (MMR) – deaths per 100,000 live births.
Main Causes	✧ Infections, malnutrition, birth complications, and lack of timely medical care.	✧ Hemorrhage, sepsis, high blood pressure, unsafe abortion, and lack of obstetric care.
Significance	✧ Reflects child health, nutrition, and access to healthcare.	✧ Reflects quality and accessibility of maternal healthcare services.
Policy Relevance	✧ Used to assess progress in child survival and public health.	✧ Used to evaluate maternal health interventions and healthcare systems.

RECENT DECLINE TRENDS

India, 2019-21 based on the Sample Registration System (SRS), the Maternal Mortality Ratio (MMR) of the country has shown a marked reduction, declining by 37 points from 130 per lakh live births in 2014–16 to 93 in 2019–21.



India has shown significant progress in health indicators between 2014 and 2021. The Infant Mortality Rate (IMR) dropped from 39 to 27 per 1000 live births, Neonatal Mortality Rate (NMR) from 26 to 19, and Under-Five Mortality Rate (U5MR) from 45 to 31. The Sex Ratio at Birth improved from 899 to 913, while the Total Fertility Rate declined from 2.3 to a stable 2.0.



REASONS FOR THE DECLINE IN CHILD AND MATERNAL MORTALITY

1. **Improved Institutional Deliveries:** Increased access to hospitals and trained medical staff

during childbirth reduced maternal and newborn risks.

2. **Expanded Immunisation Coverage:** Programmes like Mission Indradhanush boosted vaccine access, lowering preventable child deaths.
3. **Strengthened Healthcare Infrastructure:** Better primary health centres and referral systems improved maternal and child care.
4. **Nutrition and Anaemia Control Programs:** Schemes like POSHAN Abhiyaan and Anaemia Mukt Bharat helped address malnutrition and iron deficiency.
5. **Better Family Planning Services:** Wider availability of contraceptives helped reduce high-risk pregnancies and ensured spacing between births.
6. **Enhanced Awareness and Education:** Increased awareness of maternal and child health practices through ASHAs and community outreach.
7. **Janani Suraksha Yojana (JSY):** Financial incentives encouraged institutional births among economically weaker sections.
8. **Improved Sanitation and Hygiene:** Programs like Swachh Bharat Abhiyan reduced infections and improved child health outcomes.

POLICY INTERVENTIONS TO REDUCE CHILD AND MATERNAL MORTALITY

1. **National Health Mission (NHM):** Focuses on improving maternal and child health services, strengthening health infrastructure, and providing essential healthcare in rural areas.
2. **Janani Suraksha Yojana (JSY):** A financial incentive scheme to encourage institutional deliveries, particularly among women from low-income households.
3. **POSHAN Abhiyaan:** Aimed at improving maternal and child nutrition, reducing malnutrition, and promoting healthy eating habits across the country.
4. **Mission Indradhanush:** Focuses on expanding immunisation coverage for children, ensuring that all children are vaccinated against preventable diseases.
5. **Anaemia Mukt Bharat:** Aims to reduce anaemia among women and children by providing iron and folic acid supplementation and promoting better nutrition.
6. **Rashtriya Bal Swasthya Karyakram (RBSK):** Focuses on early detection and intervention for children, ensuring they have access to healthcare and treatment for health issues at an early stage.
7. **Integrated Child Development Services (ICDS):** Provides food, health services, and early childhood education to improve the well-being of children, especially those under the age of 6.
8. **Family Planning Programs:** Promote access to contraceptive methods to ensure better spacing between births and reduce high-risk pregnancies.
9. Swachh Bharat Abhiyan: Focused on improving sanitation, hygiene, and access to clean drinking water, reducing infections that affect maternal and child health.

STILL AN ISSUE PERSISTENT IN THE CHILD AND MATERNAL MORTALITY

1. **Limited Access to Healthcare in Remote Areas:** Rural and remote regions still face a shortage of healthcare infrastructure and skilled medical professionals, affecting maternal and child health services.
2. **Poor Nutritional Status:** Malnutrition remains a key factor contributing to both maternal and child mortality, with many women and children facing deficiencies in essential nutrients.
3. **High Prevalence of Anaemia:** Anaemia among women and children continues to be widespread, which can lead to complications during pregnancy and childbirth, as well as increased infant mortality.
4. **Unskilled Birth Attendants:** Despite progress in institutional deliveries, many women still give birth at home with untrained attendants, increasing the risks of complications.
5. **Early Marriages and Adolescent Pregnancies:** Early marriage and adolescent pregnancies lead to higher risks of complications during childbirth, contributing to both maternal and child mortality.
6. **Lack of Awareness and Education:** Limited knowledge about maternal and child health practices, including the importance of antenatal care, immunisation, and safe childbirth, hinders efforts to reduce mortality.

7. **Inadequate Emergency Medical Services:** Emergency obstetric care is still not universally available, and the lack of timely interventions during complications can result in deaths.
8. **Socio-Economic Inequalities:** Poverty, low socio-economic status, and lack of access to healthcare for marginalised communities continue to drive high rates of maternal and child mortality in certain regions.

WAY TO ELIMINATE CHILD AND MATERNAL MORTALITY

1. **Strengthen Healthcare Infrastructure:** Improve healthcare facilities, especially in rural and remote areas, by building more primary healthcare centres, providing essential medical equipment, and ensuring the availability of skilled healthcare professionals.
2. **Improve Access to Skilled Birth Attendants:** Ensure that every birth is attended by a trained healthcare professional, including doctors, nurses, or midwives, to handle complications and prevent maternal and child deaths.
3. **Expand Immunisation Programs:** Increase coverage of immunisation programs like Mission Indradhanush to ensure that all children receive vaccinations for preventable diseases, thus reducing infant mortality.
4. **Promote Antenatal and Postnatal Care:** Enhance access to regular antenatal care (ANC) and postnatal care (PNC) services, including check-ups, nutritional counselling, and monitoring of maternal health during pregnancy and after childbirth.
5. **Increase Nutrition and Address Malnutrition:** Implement programs that focus on improving maternal and child nutrition, such as POSHAN Abhiyaan, which provide essential nutrients and reduce risks associated with malnutrition during pregnancy and infancy.
6. **Focus on Family Planning and Spacing:** Ensure access to family planning services to reduce adolescent pregnancies and high-risk births. Encourage birth spacing to prevent complications in subsequent pregnancies.
7. **Improve Emergency Medical Services:** Strengthen emergency obstetric care services, including transport for complicated deliveries, to ensure that timely medical intervention is available in cases of maternal and child health emergencies.
8. **Raise Awareness and Education:** Promote awareness campaigns targeting communities, especially in rural areas, about the importance of prenatal care, institutional deliveries, safe motherhood, and child health practices.

CONCLUSION

India has made significant strides in reducing maternal and child mortality, as evidenced by the latest Sample Registration System (SRS) Report. The decline in key health indicators such as Maternal Mortality Ratio (MMR), Infant Mortality Rate (IMR), Neonatal Mortality Rate (NMR), and Under-Five Mortality Rate (U5MR) reflects the positive impact of targeted health interventions and policies. Government initiatives such as Janani Suraksha Yojana (JSY), POSHAN Abhiyaan, Mission Indradhanush, and expanded immunisation programs have been crucial in improving health outcomes. However, persistent challenges, particularly in rural and remote areas, poor nutritional status, inadequate healthcare infrastructure, and socio-economic inequalities, continue to hinder progress. To further eliminate maternal and child mortality, India must strengthen healthcare infrastructure, increase access to skilled birth attendants, expand immunisation, promote antenatal and postnatal care, and address malnutrition.

BRIDGING THE GAP: EDUCATION WITHOUT EMPLOYMENT IN INDIA

WHY IN THE NEWS?

The issue of education without employment is back in focus due to rising unemployment among educated youth, as highlighted by recent PLFS data. Despite reforms under the NEP 2020, a lack of industry linkages, outdated curricula, and poor skill alignment continue to hinder employability. A recent editorial by experts Gautam R. Desiraju and Mirle Surappa stressed that India's education system produces degree

holders with limited job readiness, raising concerns about the future of its demographic dividend.



HISTORICAL CONTEXT

India's education policy has evolved through key commissions like the Radhakrishnan Commission (1948) and the Kothari Commission (1966), both of which emphasised the role of education in national development. However, these policies largely focused on access, equity, and standardisation, without integrating employment-oriented skills. The colonial legacy of education as a tool to produce clerks and administrative workers persisted, promoting rote learning over critical thinking or practical training. This separation between education and employment planning has continued for decades, resulting in an academic system that prioritises degrees over job readiness—an issue the NEP 2020 now attempts to address, though with limited on-ground impact so far.

PRESENT EDUCATION SYSTEM IN INDIA: STRENGTHS VS. GAPS

Strengths	Gaps/Weaknesses
✧ Increased Access: Expansion of schools, higher enrolment under Samagra Shiksha Abhiyan	✧ Curriculum-Industry Mismatch: Only ~20% of graduates are employable (India Skills Report 2024)
✧ Growth of Digital Learning: NEP push for online/ blended education; PM e-VIDYA, SWAYAM	✧ Outdated Pedagogy: Focus on rote learning persists despite tech integration
✧ NEP 2020 Reforms: Multidisciplinary education, vocational exposure, mother tongue focus	✧ Lack of Skill-based Training: Apprenticeships and internships remain minimal at UG/PG levels
✧ Demographic Dividend: 65% of India's population is under 35 (Census projections)	✧ Degree > Skills Mindset: Youth chase degrees for prestige; employability remains low
✧ IITs & IISc World Rankings Rise: Improved QS, THE rankings (2024), particularly for STEM	✧ Weak Research Ecosystem: India spends <1% of GDP on R&D; low patent output in universities
✧ Focus on Start-ups & Innovation: Rise of incubators, Atal Innovation Mission (AIM) support.	✧ Poor Integration of Entrepreneurship: Start-up education not yet part of the mainstream curriculum
✧ Internationalisation Efforts: GIFT City and Study in India initiatives to attract global talent	✧ Uneven Quality: Rural-urban and state-wise disparities in faculty, infrastructure, and outcomes

EMPLOYMENT CRISIS AMONG EDUCATED YOUTH IN INDIA

1. **High Unemployment among Graduates:** According to the Periodic Labour Force Survey (PLFS) 2024, unemployment is highest among youth with graduate and postgraduate degrees, reflecting a deep disconnect between education and job market needs.
2. **Poor Employability Skills:** The India Skills Report 2024 highlights that only about 20% of Indian graduates are employable, indicating a lack of critical thinking, communication, and industry-relevant skills.
3. **Overemphasis on Degrees:** A degree-focused system neglects skill-based learning. Many youth pursue academic qualifications without acquiring the capabilities needed in real-world employment.
4. **Curriculum-Industry Mismatch:** Education programs are not aligned with evolving industry demands, especially in sectors like AI, green economy, and advanced manufacturing.
5. **Lack of Vocational Training and Apprenticeships:** There is inadequate emphasis on hands-on training, internships, and vocational pathways

that are essential for job readiness, particularly in non-academic professions.

6. **Automation and Technological Disruption:** Many traditional white-collar jobs are being automated, and new jobs require digital and soft skills that are not taught in conventional degree programs.
7. **Slow Job Creation in Formal Sector:** Formal sector jobs are not being created at the pace needed to absorb the increasing number of educated youth entering the workforce each year.
8. **Psychosocial Impact and Brain Drain:** Frustration due to prolonged joblessness is contributing to mental health issues and increased migration of skilled youth to countries with better employment prospects.

EVALUATION OF NEP 2020

1. **Multidisciplinary and Flexible Learning Introduced:** NEP 2020 has successfully introduced flexible undergraduate courses, with a multiple entry-exit system and academic credit banks (ABC), now rolled out across major central universities.
2. **Push for Vocational Education:** The policy mandates vocational education from Grade 6, but progress on ground remains slow. The target of 50% vocational integration by 2025 is unlikely to be met.
3. **Emphasis on Mother Tongue/Regional Language:** While promoted for early grades, implementation is uneven across states, and faces challenges in higher education and urban settings where English-medium demand is high.
4. **National Curriculum Framework (NCF) 2023 Released:** The NCF aligns with NEP goals, introducing foundational literacy, competency-based learning, and revised board exams. However, adoption by state boards varies widely.
5. **Digital and Online Learning Platforms Strengthened:** Initiatives like PM e-VIDYA, DIKSHA, and the Skill India Digital Platform have expanded online learning, but digital divide issues still affect rural and poor students.
6. **Teacher Training and Capacity Building:** The National Professional Standards for Teachers (NPST) is in draft stage; implementation of regular training and performance incentives remains limited.
7. **Research and Innovation Support:** The National Research Foundation (NRF) is yet to be fully operational. Research culture in universities remains weak due to lack of funding and mentorship.
8. **Institutional Restructuring Slow:** NEP's aim to restructure higher education into multidisciplinary institutions has not progressed rapidly; many colleges still operate in silos with outdated syllabi.

WAY FORWARD

1. **Align Curriculum with Industry Needs:** Regularly update school and university curricula in collaboration with industries to include emerging sectors like AI, renewable energy, robotics, and climate resilience.
2. **Expand Vocational and Skill-Based Education:** Strengthen institutions like ITI, NSDC, and implement apprenticeship-integrated learning from school to higher education levels, especially in semi-urban and rural areas.
3. **Promote Digital Equity:** Ensure widespread access to affordable internet and digital devices, particularly for students in rural and marginalised communities, to bridge the digital divide.
4. **Strengthen Career Counselling and Mentorship:** Institutionalise career guidance cells in schools and colleges to help students make informed choices based on aptitude, market demand, and future opportunities.
5. **Enhance Teacher Training and Accountability:** Fast-track the implementation of National Professional Standards for Teachers (NPST) with regular capacity-building, performance-linked incentives, and tech integration.
6. **Accelerate NEP 2020 Implementation:** Prioritise the timely execution of key NEP provisions like Academic Credit Banks, Multidisciplinary HEIs, and National Research Foundation to improve learning outcomes.

7. **Foster Entrepreneurship and Start-up Ecosystem:** Integrate entrepreneurship education into mainstream courses and provide incubation, seed funding, and mentorship support to encourage self-employment and innovation

CONCLUSION

There is an urgent need to realign India's education system with evolving market demands to bridge the widening gap between learning and employability. As Swami Vivekananda wisely said, *"Education is the manifestation of perfection already in man,"* but this potential can only be realised if education leads to meaningful productivity and dignity through gainful employment. With India's vast demographic dividend, it is imperative to act swiftly and transform this human resource advantage into a sustainable employment dividend for inclusive growth and national progress.

CASTE CENSUS: A TOOL, NOT A SOLUTION FOR SOCIAL JUSTICE

WHY IN THE NEWS?

The Narendra Modi government's recent announcement to include caste enumeration in the upcoming national Census has brought the issue of caste-based data collection back into the national spotlight. This development is significant as it would mark the first comprehensive attempt since 1931—excluding the limited and unpublished Socio-Economic and Caste Census (SECC) of 2011, to gather detailed caste data at a national scale officially. The decision has been welcomed by many as a long-overdue step toward obtaining reliable statistics on the socio-economic status of the Other Backward Classes (OBCs), which can help in crafting more equitable and targeted welfare policies. However, the move has also sparked concerns regarding the underlying intent of the government.

CASE FOR A CASTE CENSUS

1. **Evidence-Based Policymaking:** A caste census provides empirical data necessary to understand the socio-economic conditions of various caste groups, especially the OBCs, which is currently lacking in national datasets.
2. **Refining Affirmative Action:** Accurate caste data enables the government to design more targeted and equitable affirmative action policies, making welfare schemes more effective and legally defensible.s
3. **Addressing Intra-OBC Disparities:** It helps uncover disparities within the broad OBC category, allowing special focus on the most marginalised groups like the Extremely Backwards Classes (EBCs).
4. **Judicial Support for Policies:** Comprehensive data strengthens the legal validity of reservation policies and welfare schemes when challenged in courts, as it provides a factual basis for inclusion and quota determination.
5. **Promoting Transparency and Accountability:** A caste census brings clarity to public debates on reservation, representation, and resource allocation, reducing reliance on estimates and political rhetoric.
6. **Guiding State-Level Initiatives:** States that conduct their own caste surveys, like Bihar, can use national-level caste data to align their policies with broader demographic trends and needs.
7. **Highlighting Gaps in Representation:** It can reveal underrepresentation of marginalized castes in sectors like education, bureaucracy, judiciary, and corporate leadership, pushing for institutional reforms.
8. **Strengthening Democratic Governance:** A caste census empowers democratic discourse by acknowledging the social realities of caste, thereby fostering inclusive policymaking and social justice.

LIMITATIONS OF CENSUS-BASED POLICYMAKING

1. **Risk of Political Misuse:** There is a genuine concern that the caste census could be exploited as a political instrument during elections, with parties using the data to consolidate caste-based vote banks rather than initiate meaningful reforms.
2. **Erosion of Institutional Neutrality:** The Office of the Registrar General, which conducts the

Census, is meant to be an apolitical body. Involving it in sensitive caste-based enumeration risks undermining its credibility and the neutrality of the Census process.

3. **Politicisation of the Census Process:** Conducting a caste census in an already polarised environment could make the exercise contentious, potentially leading to boycotts, misinformation, or mistrust among various social groups.
4. **Delays in Policy Action:** Governments may use the absence of updated caste data as an excuse to postpone critical reforms, even when sufficient evidence of social disadvantage already exists from other sources.
5. **Historical Reforms Without Data:** Landmark policy decisions like land reforms, reservation policies for SCs/STs, and the implementation of Mandal Commission recommendations were taken based on political commitment and visible social need, not exhaustive statistical data.
6. **Data Overload Without Implementation:** Past exercises like the Socio-Economic and Caste Census (SECC) of 2011 generated vast amounts of data, but much of it remains unused due to lack of political will or bureaucratic inertia.
7. **Risk of Incomplete or Inaccurate Data:** Caste enumeration is a complex task. Respondents may misreport or underreport their caste due to stigma, fear, or confusion, leading to unreliable data that can misguide policy.
8. **Social Tensions and Backlash:** Public release or leak of detailed caste data could aggravate social tensions, fuel inter-group rivalries, or lead to increased demand for quota-based entitlements from various groups.
9. **Data Alone Does Not Ensure Justice:** The presence of caste-related data does not automatically translate into equitable policies. Without sustained political commitment and follow-through, data risks becoming a bureaucratic exercise with minimal real-world impact.

EXISTING DATA AND GAPS IN ACTION

1. **SC/ST Data Already Available:** Every decennial Census, along with NFHS and NSSO surveys, collects detailed data on SCs and STs, providing a consistent statistical base.
2. **Persistent Inequalities:** Despite this data, disparities in education, health, and employment among SCs/STs remain widespread, showing that data alone doesn't guarantee reform.
3. **SECC (2011) Underutilised:** The Socio-Economic and Caste Census revealed extensive socio-economic details, especially about OBCs, but its caste data was never officially released or effectively used.
4. **Bihar Caste Survey Ignored:** Bihar's survey showed that a large share of OBCs and EBCs live in poverty, yet the findings have led to limited systemic policy changes.
5. **Representation Gaps Remain:** Despite available data, OBCs, SCs, and STs remain underrepresented in higher education, judiciary, bureaucracy, and the private sector.
6. **Cherry-Picking of Data:** Caste-related data is often selectively used for political gains rather than comprehensive policymaking.
7. **Health and Education Gaps:** NFHS data highlights caste-based disadvantages in maternal health, nutrition, and school access, with little targeted intervention.
8. **Lack of Follow-Through:** Recommendations from past commissions and surveys are rarely implemented fully, indicating a gap between evidence and action.
9. **Political Will Is Key:** The real challenge lies in the lack of sustained political commitment—data exists, but meaningful change requires intent and action.

NEGLECT IN REPRESENTATION

1. **Underrepresentation in Elite Sectors:** Studies show that OBCs, SCs, and STs remain grossly underrepresented in sectors like corporate, mainstream media, higher judiciary, and premier academic institutions.
2. **Disparities in Higher Education:** Despite reservation policies, marginalised castes still face significant barriers to accessing top-tier educational institutions and faculty positions.
3. **Limited Presence in Bureaucracy:** Senior positions in the civil services continue to be

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dominated by upper castes, with minimal representation from historically disadvantaged groups.

4. **Media and Cultural Marginalization:** Major newsrooms and media ownership are heavily skewed, with negligible diversity, leading to a lack of inclusive narratives and perspectives.
5. **Neglected Private Sector Representation: sw**There are no binding mechanisms to ensure caste diversity in private companies, resulting in continued exclusion from economic power structures.
6. **Stagnation in Political Empowerment:** While there is visible representation in electoral politics, real policy-making influence and leadership roles remain elusive for many from OBC/SC/ST backgrounds.
7. **Absence of Institutional Reform:** Despite years of documentation and advocacy, there have been few systemic reforms aimed at improving caste-based representation in key institutions.
8. **Wasted Opportunities Despite Data:** The availability of socio-economic data has not translated into proactive steps toward representation, pointing to a deeper neglect of equity goals.

BEYOND DATA: THE ROLE OF POLITICAL WILL

1. **Data as Diagnostic, Not Decisive:** While essential for understanding issues, data alone cannot drive policy unless backed by political and moral commitment.
2. **EWS Quota as a Case Study:** The 10% EWS quota was implemented swiftly without waiting for comprehensive data, showing that political will can override data constraints when desired.
3. **History of Reform Through Activism:** Major social justice reforms in India, such as Mandal reservations, were the result of public pressure and political will, not just statistical findings.
4. **Democratic Mobilisation Matters:** Social movements, not surveys, often push governments to act decisively on inclusion, equity, and welfare.
5. **Data Can Be Ignored:** Governments often overlook available data if it doesn't align with political priorities, rendering even robust surveys ineffective.
6. **Risk of Data Becoming a Delay Tactic:** The demand for perfect data is sometimes used as a pretext to defer or dilute urgent reforms.
7. **Moral Clarity in Policy Making:** Genuine social transformation stems from a principled commitment to justice, not just technocratic exercises.
8. **Action Must Precede Precision:** Waiting for granular caste data should not delay corrective measures—meaningful inclusion requires timely and bold decisions.

CONCLUSION

The renewed debate over a caste census underscores the complex interplay between data, democracy, and social justice in India. While comprehensive caste-based data can be a valuable tool for equitable policymaking, its mere collection does not guarantee transformative change. Historical experience shows that real reform stems from political will, moral conviction, and inclusive governance, not just statistics. A caste census may illuminate entrenched disparities, but bridging those gaps requires sustained action, not selective attention. Ultimately, the pursuit of social justice must go beyond enumeration to ensure representation, dignity, and opportunity for all citizens, regardless of caste.

PRELIMS QUESTIONS

1. **Which of the following statements is true about the National Food Security Act (NFSA)?**
   (a) It provides food security only to urban poor
   (b) It subsidizes food grains for over 800 million people in India
   (c) It was introduced in 2015 to tackle extreme poverty in rural areas
   (d) It is limited to providing free housing to the poor.
2. **Which Of The Following Was Not A Topic Covered In The Pm-Usha Meru National Work-Shop Sessions?**
   (a) Ugc Regulations For Nep Implementation
   (b) Holistic Education Through Skill Integration

(c) National Health Policy Reforms

(d) Clustering And Collaboration For Multidisciplinary Education

3. With Reference To The Sample Registration System (Srs) Report 2021, Consider The Following Statements:

1. The Maternal Mortality Ratio (Mmr) In India Has Declined From 130 Per Lakh Live Births In 2014–16 To 93 Per Lakh Live Births In 2019–21.
2. The Infant Mortality Rate (Imr) In India Has Increased From 39 Per 1000 Live Births In 2014 To 35 Per 1000 Live Births In 2021.
3. The Total Fertility Rate (Tfr) In India Has Consistently Remained At 2.3 Between 2014 And 2021.

How Many Of The Above-Given Statements Are Correct?

(a) Only One (b) Only Two

(c) All Three (d) None

4. The National Research Foundation (Nrf), Proposed Under Nep 2020, Aims To:

(a) Regulate Teacher Salaries

(b) Promote Research And Innovation In Higher Education

(c) Conduct School Board Examinations

(d) Provide Vocational Training To School Students

5. With Reference To The Caste Census In India- Consider The Following Statements:

1. The Last Comprehensive Caste-Based Enumeration Was Carried Out During The Census Of 2011.
2. The Ministry Of Home Affairs Conducted The Socio-Economic And Caste Census (Secc), 2011.
3. Data Related To Scheduled Castes And Scheduled Tribes Is Collected In Every Decennial Census In India.

Which of The Statements Given Above Is/Are Correct?

(a) 1 And 2 Only

(b) 2 And 3 Only

(c) 3 Only

(d) 1 And 3 Only

ANSWER-KEY

1. (b)	2. (c)	3. (a)	4. (b)	5. (d)

MAINS QUESTIONS

1. Evaluate The Current State Of Education In India And Its Role In Poverty Alleviation. What Reforms Are Needed To Make Education More Accessible And Inclusive?

(15 Marks, 250 Words)

2. "India's Aspiration To Become A Global Knowledge Hub Requires Transformation In Pub-Lic Higher Education." Discuss This Statement In The Light Of Pm-Usha And Related Initia-Tives.

(250 Words, 15 Marks)

3. Discuss The Reasons Behind The Significant Decline In Maternal And Child Mortality In India In Recent Years.

(250 Words, 15 Marks)

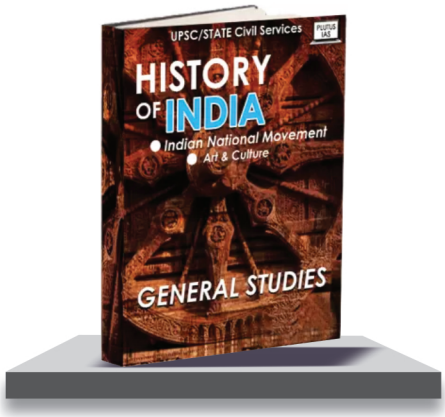
4. Discuss The Challenges Of Employability Among India's Educated Youth And Evaluate The Impact Of The National Education Policy 2020 In Addressing These Challenges. Suggest Measures To Improve The Linkage Between Education And Employment.

(250 Words, 15 Marks)

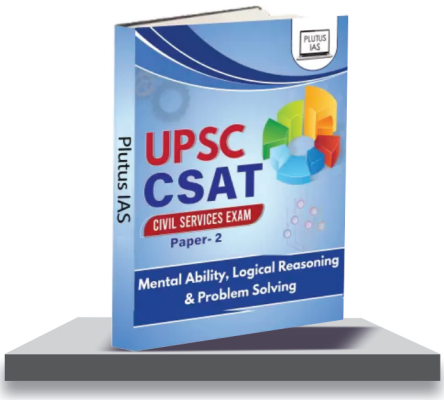
5. In Light Of The Recent Decision To Include Caste Enumeration In The Upcoming Census, Critically Examine The Role Of A Caste Census In Addressing Social Inequalities In India. Do You Think Data Alone Is Sufficient For Ensuring Social Justice?

(250 Words, 15 Marks)

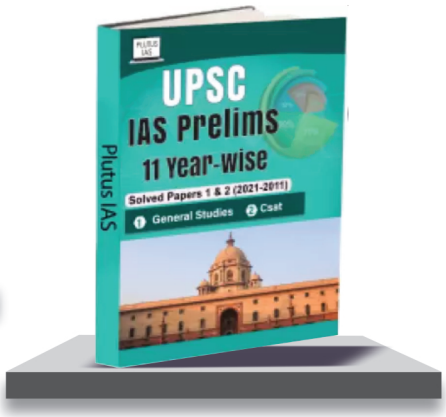
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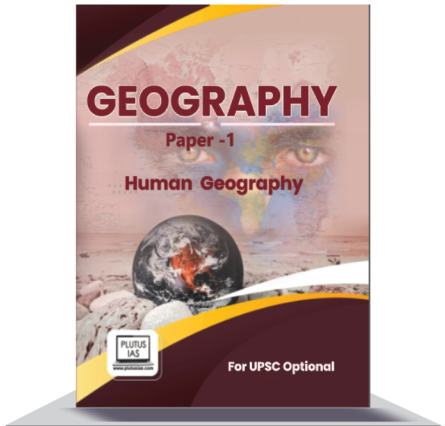


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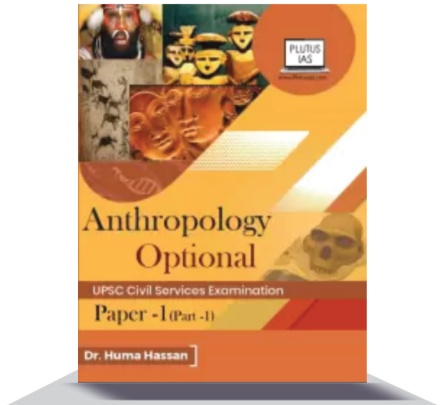


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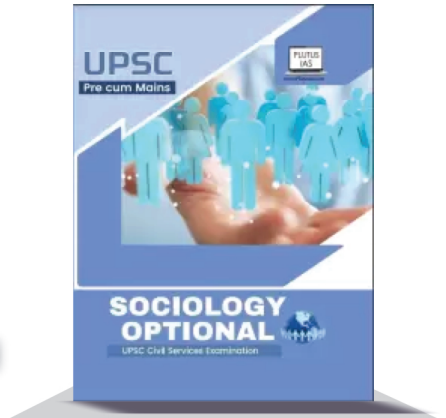
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