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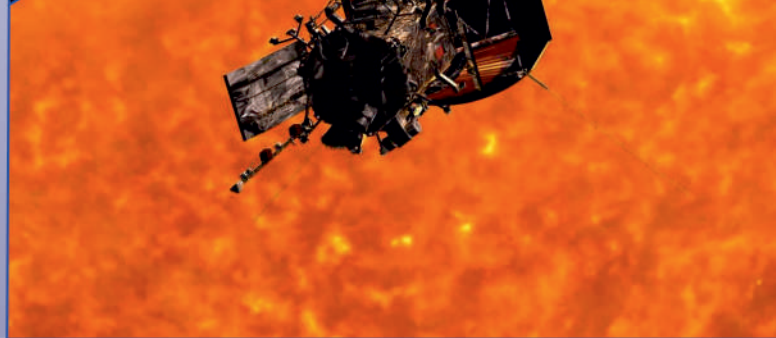
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MAY 2025

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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.

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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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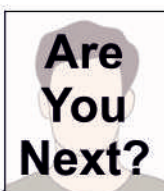


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MAY 2025

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NATIONAL LEGAL SERVICES AUTHORITY (NALSA): CHAMPIONING ACCESS TO JUSTICE



WHY IN THE NEWS?

Justice BR Gavai, Executive Chairman of the National Legal Services Authority (NALSA), recently emphasized the importance of citizens being aware of their constitutional and statutory rights to effectively enforce them. Speaking at the Western Regional Conference in Ekta Nagar, Gujarat, he highlighted that the constitutional promise under Article 39A, which ensures equal justice and free legal aid, can only be fulfilled through NALSA's efforts to reach out to the "last mile citizens" of the country. Justice Gavai's remarks underscore the ongoing initiatives by NALSA to educate and empower marginalized communities, ensuring that legal aid is accessible to all citizens, especially those in remote and underserved areas.

WHAT IS NALSA?

The National Legal Services Authority (NALSA) provides free legal services to the weaker sections of society, ensuring constitutional rights are upheld. It bridges the gap between law and the marginalized. It ensures that opportunities for securing justice are not denied due to economic or other disabilities. Justice must be affordable, accessible, and timely for all. Constituted under the Legal Services Authorities Act, 1987, it became operational in 1995. It was a major step toward institutionalizing legal aid in India. NALSA lays down policies and principles to make legal services accessible at all levels of society. It frames effective schemes for legal empowerment.

BACKGROUND AND ORIGIN

1. **Constitutional Foundation:** Article 39A The concept of legal aid in India stems from Article 39A of the Constitution, which mandates the state to provide free legal aid to ensure that economic or social disadvantages do not become barriers to justice. It highlights the constitutional commitment to equality before the law and equal access to justice.
2. **Early Reforms:** The Role of CILAS In 1980, the Committee for Implementing Legal Aid Schemes (CILAS) was established under Justice P.N. Bhagwati. This was a landmark step in institutionalizing legal aid and brought national attention to systemic legal reform. CILAS acted as a catalyst for subsequent legal aid legislation.
3. **Statutory Evolution:** Legal Services Authorities Act, 1987 The Legal Services Authorities Act, 1987 was enacted after gaps in the CILAS mechanism were identified. This Act formalized the structure, powers, and financial framework for legal aid in India. It provided a legal mandate for legal services and laid the foundation for NALSA.
4. **Institutionalization of NALSA in 1995:** The National Legal Services Authority (NALSA) was constituted in 1995, with the Chief Justice of India as Patron-in-Chief, giving it high judicial stature. NALSA was tasked with nationwide policy formulation, coordination, and the development of legal aid programs.
5. **Broadening of Vision and International Inspiration:** NALSA's mandate expanded over time to include legal literacy, Lok Adalats, victim compensation, and empowerment of marginalized groups. Its development was also inspired by international human rights standards, such as the UN Basic Principles on the Role of Lawyers, promoting global norms of justice and dignity.

NALSA: BENEFICIARIES GROUP AND STRUCTURE

1. **Beneficiaries:** Scheduled Castes, Scheduled Tribes, and Marginalized Groups: Beneficiaries include Scheduled Castes, Scheduled Tribes, women, children, disabled persons, and those below the poverty line. These groups often face structural inequalities and barriers in accessing justice. NALSA's schemes specifically address these barriers, such as the NALSA (Legal Services to Scheduled Castes and Scheduled Tribes) Scheme, 2015. Awareness drives and camps are conducted regularly in rural and tribal belts.
2. **Victims of Disasters, Industrial Workmen, and Persons in Custody:** Victims of disasters, industrial workmen, and persons in custody are also eligible for free legal aid. The NALSA Scheme for Disaster Victims (2010) ensured immediate legal help after natural calamities like floods or earthquakes. Additionally, Supreme Court interventions like *Sunil Batra v. Delhi Administration* emphasized the legal rights of prisoners, reinforcing NALSA's role.
3. **Organizational Structure and Leadership:** Chairperson: Chief Justice of India as Patron-in-Chief, and a senior judge as Executive Chairman. This top-level leadership ensures independence and credibility. The patronage of the judiciary lends moral and institutional weight to NALSA's initiatives. The current Executive Chairman often actively monitors nationwide campaigns.
4. **State Legal Services Authorities (SLSA):** State Legal Services Authorities (SLSA) are headed by Chief Justices of respective High Courts, ensuring state-level monitoring. Each SLSA tailors programs to local needs, such as specific schemes for flood-prone states or insurgency-affected regions. For example, Assam SLSA undertakes legal literacy programs focused on displaced communities.
5. **District Legal Services Authorities (DLSA) and Taluk Legal Services Committees (TLSC):** District Legal Services Authorities (DLSA) and Taluk Legal Services Committees provide grassroots implementation of legal aid. They organize Lok Adalats, legal awareness camps, and free legal

counseling centers. Their role was crucial during the COVID-19 pandemic in providing helpline services for migrant laborers seeking legal assistance.

NALSA: ACHIEVEMENTS IN LAST 3 DECADES

1. **Resolution of Over One Crore Cases via Lok Adalats:** Over one crore cases resolved annually through Lok Adalats, reducing the burden on conventional courts. These settlements are final and binding under the Legal Services Authorities Act, 1987, and have significantly improved access to quick justice. In 2022 alone, Lok Adalats helped settle disputes worth over ₹12,000 crore across India.
2. **Mass Legal Awareness Campaigns:** Legal awareness campaigns have reached over 100 million people, particularly in rural and marginalized communities. Special drives were launched on Constitution Day and Legal Services Day. Street plays, radio broadcasts, and door-to-door campaigns have been instrumental in educating people about their rights and available legal remedies.
3. **Victim Compensation Schemes for Crime Survivors:** The Victim Compensation Schemes provided financial relief to lakhs of crime victims. This support covers survivors of sexual assault, acid attacks, and other heinous crimes. For instance, the Delhi Victim Compensation Scheme provided ₹3 lakh compensation in acid attack cases, ensuring some financial stability during recovery.
4. **Special Initiatives for Child, Women, and Prisoner Rights:** Special initiatives for child rights, women's rights, and prisoners' rights were launched, including Juvenile Justice outreach programs. NALSA actively worked on programs for children in conflict with the law and children in need of care and protection. Awareness drives under the Child-Friendly Legal Services to Children and their Protection initiative saw wide success in urban and rural areas.
5. **e-Lok Adalats During COVID-19 Pandemic:** Launch of e-Lok Adalats during the COVID-19 pandemic disposed of over 6 lakh cases

online. Technology ensured continuity during lockdowns, particularly for small disputes, insurance claims, and traffic challans. States like Chhattisgarh and Madhya Pradesh reported massive success in organizing virtual hearings under e-Lok Adalats.

NALSA: STILL ISSUES HAMPERING ITS WORKING

- 1. Awareness Gaps and Rural Literacy:** Awareness gaps remain a challenge, with many eligible citizens unaware of free legal aid. Rural literacy levels impact dissemination, and misconceptions about eligibility further discourage participation. Even initiatives like legal literacy camps sometimes fail to reach deeply remote tribal belts.
- 2. Shortage of Trained Advocates:** There is a shortage of trained advocates ready to work under legal aid schemes due to low financial incentives. Many young lawyers prefer private practice where earnings are higher. In states like Bihar and Odisha, reports suggest a lack of adequately trained and motivated legal aid counsels hampers justice delivery.
- 3. Inconsistent Service Delivery Across States:** Inconsistent service delivery across states, with significant regional disparities, is a major issue. Urban centers like Delhi and Mumbai have well-functioning DLSAs, but remote districts in Northeast India face acute shortages. This imbalance undermines the principle of equal access to justice for all.
- 4. Funding Constraints:** Funding constraints limit outreach activities, especially for legal literacy camps. Many legal service authorities operate on tight budgets, affecting regular training programs and awareness drives. For instance, smaller states often struggle to organize Nyaya Panchayats and mobile legal clinics due to resource shortages.

RECOMMENDATIONS

- 1. Awareness Campaigns in Schools, Panchayats, and Slums:** Launch massive awareness campaigns in schools, Panchayats, and urban slums. Radio and mobile vans can be effective in spreading messages in local languages. Collaboration with NGOs and SHGs (Self Help

Groups) can further amplify the reach and create grassroots impact.

- 2. Incentives for Panel Lawyers:** Better incentives for panel lawyers, including recognition awards, stipends, and career development. Quality should not be compromised; a performance-based system can be introduced. Annual rankings and awards for the best legal aid providers can motivate young lawyers to participate more actively.
- 3. Mandatory Legal Aid Training for Law Graduates and Advocates:** Make legal aid training mandatory for law graduates and practicing advocates. Specialized certification can enhance credibility and ensure a minimum quality standard. Bar Council-accredited modules can be included in law curricula and continuous legal education programs.
- 4. Expansion of Technology for Legal Aid:** Expand technology usage by introducing mobile legal clinics and virtual Lok Adalats. AI can assist in preliminary legal advice through chatbots and mobile apps. Partnerships with tech startups can develop innovative solutions for legal grievance redressal in vernacular languages.
- 5. Strengthening Community Partnerships for Legal Literacy:** Strengthen community partnerships by training local volunteers as legal literacy workers. Ownership improves participation and sustainability of programs. Regular refresher courses and small honorariums for community volunteers can keep the momentum alive and ensure accountability.

CONCLUSION

NALSA stands as a beacon of hope for millions seeking access to justice in India. Over the past three decades, it has transformed the legal aid landscape through initiatives like Lok Adalats, Victim Compensation, and legal literacy drives. However, systemic challenges such as low awareness, inadequate quality, and funding gaps continue to hamper its full potential.

INSTITUTIONALIZING THE RIGHT FOR INCLUSIVE GROWTH OF TRIBAL PEOPLE: FOREST RIGHTS ACT (FRA) 2006



WHY IN THE NEWS?

Supreme Court hearing on challenges to the Forest Rights Act (FRA), 114 Adivasi rights bodies and environmental groups have urged Union Tribal Affairs Minister Jual Oram to defend the 2006 law, which protects forest rights of tribal and forest-dwelling communities. The FRA has been contested since 2008 by Wildlife First, an NGO advocating for the eviction of those whose FRA claims were rejected. In 2019, the Supreme Court ordered evictions, but after protests, the Ministry intervened, citing procedural errors and wrongful rejections of claims. The court stayed the eviction and called for detailed data on rejected claims.

WHAT IS THE FOREST RIGHTS ACT (FRA) 2006?

The Forest Rights Act (FRA), 2006, also known as the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, is a landmark legislation in India aimed at recognizing and securing the rights of forest-dwelling tribal communities and other traditional forest dwellers over forest resources. The Act was enacted to address historical injustices that these communities faced due to displacement and denial of their rights to forest land and resources.

KEY FEATURES OF FOREST RIGHTS ACT (FRA) 2006

1. **Recognition of Rights:** The Forest Rights Act (FRA) 2006 grants several key rights to forest dwellers: Individual Rights for self-cultivation and habitation, Community Rights for grazing, fishing, and forest management, Habitat Rights for PVTGs to live in their traditional habitats, Nomadic and Pastoral Rights for access to seasonal resources and migratory routes, and Community Forest Rights to protect and manage forest resources sustainably.

2. **Empowerment of Gram Sabha:** The Gram Sabha (village assembly) plays a key role in determining and protecting the rights of forest dwellers, empowering them to manage forest resources at the local level.
3. **Prevention of Eviction Without Rehabilitation:** Ensures that tribal populations and forest dwellers are not evicted without proper rehabilitation, aligning with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Settlement Act, 2013.
4. **Protection of Biodiversity:** Forest dwellers are involved in conserving biodiversity and wildlife and maintaining ecological balance.
5. **Developmental Rights:** Provides rights to allocate forest land for essential infrastructure such as schools, healthcare centres, and community facilities.

ACHIEVEMENT OF FOREST RIGHTS ACT (FRA) 2006

1. **Recognition of Rights:** The FRA has successfully recognized the rights of forest-dwelling tribal communities and other traditional forest dwellers, granting them legal ownership of forest land and resources that they have depended on for generations.
2. **Empowerment of Gram Sabha:** The Act has empowered local communities through the Gram Sabha (village council), allowing them to actively participate in decision-making regarding forest management and resource allocation.
3. **Prevention of Unlawful Evictions:** The FRA has protected tribal and forest-dwelling communities from unlawful eviction, ensuring that they cannot be displaced without proper rehabilitation and compensation.
4. **Sustainable Forest Management:** The Act encourages sustainable forest resource management by recognizing the rights of communities to conserve and protect their forests, contributing to biodiversity conservation and ecosystem maintenance.

5. **Improved Livelihoods:** By granting rights to access forest resources like grazing, fishing, and minor forest produce, the FRA has improved the livelihoods and food security of forest-dwelling communities.
6. **Protection of Vulnerable Groups:** The Act has specifically addressed the needs of Particularly Vulnerable Tribal Groups (PVTGs), ensuring they retain access to their traditional habitats and resources.
7. **Inclusive Development:** The FRA has facilitated inclusive development by ensuring that tribal communities have access to basic services like education, healthcare, and infrastructure, promoting social and economic upliftment.

ISSUE WITH FOREST RIGHTS ACT (FRA) 2006 IMPLEMENTATIONS

1. **Slow and Delayed Implementation:** The process of recognizing and vesting forest rights has been slow due to delays in forming Forest Rights Committees (FRCs) and holding Gram Sabha meetings for verification and approval.
2. **Lack of Awareness:** Many forest-dwelling communities are unaware of their rights under FRA, leading to under-reporting of claims and missed opportunities for recognition.
3. **Bureaucratic Hurdles:** The involvement of multiple government agencies often causes delays and confusion in the implementation process. Bureaucratic inefficiencies can result in prolonged recognition of rights.
4. **Opposition from Forest Departments:** Forest departments sometimes resist the implementation of FRA, particularly in areas where it conflicts with conservation priorities or forest management strategies.
5. **Disputes and Conflicts Over Land:** Land disputes often arise, especially in cases where claims are unclear or contested. These disputes can lead to prolonged legal battles and uncertainty for forest communities.
6. **Evictions Despite Legal Protections:** In some cases, forest-dwelling communities are being

evicted despite the legal provision that no evictions should occur until rights are recognized and verified.

7. **Inadequate Monitoring and Enforcement:** There is a lack of independent monitoring and accountability to ensure that the rights of forest communities are upheld and that the FRA is properly enforced.
8. **Conflicts Between Rights and Conservation Goals:** Balancing the rights of forest-dwelling communities with the need for conservation, especially in critical wildlife habitats, has led to conflicts regarding land use and resource management.
9. **Inequities in Beneficiaries:** The process of recognizing rights sometimes favours certain groups over others, leading to inequities in the distribution of forest rights, especially in areas with large tribal populations or diverse communities.
10. **Lack of Support for Implementation:** There is inadequate support, both financially and in terms of capacity-building, for Gram Sabhas and local authorities responsible for implementing FRA.

WAY TO MAKE THE FOREST RIGHTS ACT (FRA) 2006 TO PROTECT THE RIGHTS

1. **Increase Awareness and Education:** Conduct awareness campaigns to inform forest-dwelling communities, Gram Sabhas, and local authorities about the FRA's provisions and processes. This can help ensure that everyone is informed of their rights and responsibilities under the law.
2. **Capacity Building for Gram Sabhas and Forest Rights Committees (FRCs):** Train local communities, Gram Sabhas, and FRCs to effectively carry out the process of identifying and verifying claims. This includes providing technical assistance and resources to ensure proper documentation and decision-making.
3. **Streamline the Verification and Recognition Process:** Simplify and speed up the process for verifying claims by setting clear deadlines and guidelines. Introduce digital tools and geospatial

technology to aid in the efficient verification and mapping of forest rights.

4. **Establish independent:** monitoring bodies to track the implementation of FRA. These bodies should ensure that forest rights are being recognized fairly, that there is no corruption or bias, and that communities are not evicted without due process.
5. **Create a Legal and Institutional Framework for Dispute Resolution:** Set up dispute resolution mechanisms to handle conflicts related to the recognition of forest rights. This can include setting up local tribunals or committees that can quickly resolve disputes over land claims.
6. **Ensure Protection Against Forced Evictions:** Strictly enforce the provision that no forest-dwelling community should be evicted until their rights have been recognized and verified. In cases where evictions are necessary, a resettlement package should be provided, ensuring livelihood security.
7. **Promote Co-Management of Forest Resources:** Encourage co-management of forest resources by forest communities and the forest department. This would ensure that the conservation goals of the state are balanced with the livelihood and cultural needs of forest-dwelling communities, leading to more sustainable forest management practices.
8. **Strengthen Legal Support and Advocacy:** Provide legal aid and advocacy support to communities facing challenges in claiming or protecting their rights. Collaboration with NGOs and legal professionals can help ensure that forest communities have the resources they need to assert their rights and address any challenges in the process.

CONCLUSION

The Forest Rights Act (FRA) 2006 represents a critical step in recognizing and protecting the rights of tribal and forest-dwelling communities, addressing the historical injustices they have faced due to displacement and denial of their rights to forest land and resources. The Act aims

to provide legal recognition to their rights over forests, ensuring they can continue their traditional lifestyles while contributing to forest conservation and sustainable management. However, despite the significance of the FRA, its implementation has been slow and fraught with challenges. These challenges include bureaucratic inefficiencies, lack of awareness among communities, resistance from forest departments, and issues with land disputes. The legal protections provided by the FRA, such as preventing evictions until rights are verified, have often been violated, leading to further insecurity for the affected communities.

FOREIGN CONTRIBUTION (REGULATION) ACT, 2010: ENSURING TRANSPARENCY IN FOREIGN FUNDING



WHY IN THE NEWS?

The Union Home Ministry has announced that foreign funds received under the prior permission route must be utilised within four years from the date of approval. This directive is in accordance with the provisions of the Foreign Contribution (Regulation) Act, 2010 (FCRA). As per the ministry, the validity period for receiving foreign contributions under prior permission is three years, and the funds must be used within a maximum of four years. For applications already approved where the remaining validity exceeds three years, the four-year limit will now be counted from the date of issuance of this new order rather than from the original date of approval. This move aims to enhance compliance and accountability in the utilisation of foreign contributions.

WHAT IS FCRA 2010?

The Foreign Contribution (Regulation) Act (FCRA), 2010, was enacted by the Parliament of India to consolidate the law regulating the acceptance and utilization of foreign contributions or foreign hospitality by certain individuals, associations, or companies. It aims to prohibit such acceptance or utilization for activities that are detrimental to

the national interest and also addresses matters connected or incidental to these objectives.

KEY PROVISION OF FCRA 2010

1. **Registration or Prior Permission:** Any individual, association or NGO must either register or obtain prior permission from the Ministry of Home Affairs (MHA) to receive foreign contributions.
2. **Designated FCRA Account:** Foreign contributions must be received only in a designated FCRA account at the State Bank of India, New Delhi Main Branch (NDMB).
3. **Prohibited Recipients:** Certain entities cannot receive foreign funds, including Election candidates, Judges, Government servants, members of the legislature, Political parties and their office-bearers, Journalists (under certain conditions)
4. **Restricted Use of Funds:** Foreign contributions must not be used for Activities against national interest, Political funding, Religious conversion, Sedition or violence, Administrative expenses beyond a permissible limit (currently capped at 20%)
5. **No Sub-Granting (as per 2020 Amendment):** Registered organizations cannot transfer foreign funds to other NGOs or entities, even if the latter is FCRA-registered.
6. **Maintenance of Records:** Recipients must maintain proper accounts and file annual returns detailing the receipt and usage of foreign funds.
7. **Suspension/Cancellation of Registration:** The MHA can suspend or cancel registration in case of violations or misuse of foreign funds.
8. **Mandatory Aadhaar for Office Bearers:** Key functionaries of NGOs must link their identity with the Aadhaar (2020 amendment).
9. **Cap on Administrative Expenses:** Administrative expenses must not exceed 20% of total foreign contributions received (earlier it was 50%).
10. **FCRA Online Services:** All applications for registration, renewal, and reporting are processed through the FCRA online portal.

RECENT RULES OF FCRA 2010

1. **TDS Refund Transfer:** The FCRA Amendment Rules 2024 clarify the process of transferring TDS refunds, addressing concerns regarding the previous ambiguity.
2. **Carrying Forward Administrative Expenses:** The rules now permit carrying forward administrative expenses, offering some relief to organizations.
3. **FCRA Registration Validity:** The Act states that registration certificates are valid for five years, and renewal must occur within six months before expiry.
4. **Prohibition of Foreign Contribution:** The FCRA prohibits the acceptance of foreign contributions by individuals like candidates for elections, journalists, judges, government servants, and members of the legislature or political parties.
5. **FCRA Account:** Organizations are required to open a designated "FCRA Account" to manage foreign contributions.
6. **Purpose of Funds:** The FCRA mandates that NGOs utilize foreign funds only for the purposes for which they were received and as stipulated in the Act.

IMPORTANCE OF FOREIGN FUNDS FOR NGO

1. **Financial Support for Development Projects:** Foreign contributions fund a wide range of social, educational, health, environmental, and humanitarian programs, especially in rural and underserved regions.
2. **Innovation and Research:** Many NGOs engage in research, advocacy, and innovation, especially in fields like climate change, public health, and education, which are often funded by international donors.
3. **Capacity Building:** Foreign aid helps NGOs build infrastructure, train personnel, and improve their internal systems for better project implementation and impact assessment.
4. **Collaboration and Global Best Practices:** International funding often comes with technical expertise and global best practices, enabling

Indian NGOs to align with global development goals like the UN SDGs.

5. **Filling Gaps in Governance:** NGOs supported by foreign funds often operate in areas where government programs are absent, underfunded, or inaccessible, helping improve last-mile delivery.
6. **Focus on Marginalized Communities:** Foreign funding empowers NGOs to work with marginalized and vulnerable groups, ensuring inclusivity and equity in development initiatives.
7. **Advocacy and Human Rights Work:** Many NGOs engaged in human rights, gender equality, and legal aid rely on foreign support to remain independent and effective.

WAY FORWARD

1. **Strengthen Compliance Without Overregulation:** Implement tiered compliance norms based on NGO size and scope. Provide dedicated support and simplified processes to reduce bureaucratic hurdles.
2. **Enhance Transparency:** Introduce digital dashboards for real-time tracking of foreign funds. Public disclosure of fund usage and third-party audits can improve accountability.
3. **Promote Domestic Philanthropy:** Offer tax incentives and CSR partnerships to encourage local funding. A national platform can help connect donors with grassroots NGOs.
4. **Build Capacity for Compliance:** Organize training workshops and create SOPs and e-learning tools to help NGOs understand and meet FCRA requirements effectively.
5. **Balance Security and Civil Liberties:** Ensure fair enforcement by avoiding blanket bans and involving civil society in policy-making. Protect freedom of association while addressing misuse.

CONCLUSION

While ensuring national security, FCRA must foster a supportive regulatory ecosystem for NGOs. A transparent, facilitative, and balanced framework

will empower civil society to contribute meaningfully to India's development. Moreover, the government should act as an enabler rather than a controller—encouraging collaboration, trust-building, and dialogue between regulatory bodies and the non-profit sector. By promoting accountability without compromising the autonomy of genuine NGOs, India can ensure both national interest and inclusive social progress go hand-in-hand. A vibrant and well-supported NGO ecosystem is vital for a democratic, equitable, and sustainable future.

VULNERABLE SECTIONS: TRIBAL EDUCATION IN INDIA



WHY IN THE NEWS?

The National Education Society for Tribal Students (NESTS) is set to celebrate its 7th Foundation Day on April 1, 2025, at Akashwani Bhawan, New Delhi. The event will be attended by key dignitaries, including Union Minister of Tribal Affairs, Shri Jual Oram, and Minister of State for Tribal Affairs, Shri Durgadas Uikey. The celebration will feature keynote speeches, cultural performances, student felicitation, and a special screening highlighting NESTS' contributions to tribal education. Since its inception, NESTS has played a transformative role in expanding Eklavya Model Residential Schools (EMRS), improving infrastructure, and enhancing learning opportunities for tribal students. The Foundation Day will underscore its achievements and reinforce the government's commitment to providing quality education, skill development, and cultural preservation for tribal communities.



WHAT IS NESTS?

The National Education Society for Tribal Students (NESTS) is an autonomous organization under the Ministry of Tribal Affairs, Government of India. It was established to implement and manage Eklavya Model Residential Schools (EMRS), which aim to provide quality education to tribal children across the country. NESTS plays a crucial role in ensuring that tribal students receive the necessary educational support, infrastructure, and opportunities for holistic development.

KEY FEATURES OF NESTS:

1. Manages over 700 EMRS schools nationwide, aiming for 1 school per block with 50% ST population.
2. Provides free residential education to ST students, covering tuition, food, and accommodation.
3. Focuses on STEM education, sports, and skill development for tribal students.
4. Ensures teacher training and digital learning initiatives in tribal areas.
5. Works in collaboration with state governments to enhance education accessibility.

STATUS OF TRIBAL EDUCATION IN INDIA

1. **Data on Tribal Education:** As per the National Sample Survey (NSS) and Census 2011, the literacy rate among Scheduled Tribes (STs) in India stands at 59%, which is significantly lower than the national literacy rate of 77.7% (as per NSO survey 2021). The female literacy rate among STs is even lower, around 49%, highlighting the gender disparity in education. The Annual Status of Education Report (ASER) 2022 suggests that dropout rates among tribal students remain high, especially at the secondary level. Around 70% of tribal students drop out before completing high school. Only 4% of ST students pursue higher education.
2. **Schools and Infrastructure:** The government has established Eklavya Model Residential Schools (EMRS), Ashram Schools, and Kendriya Vidyalayas in tribal regions, but their reach is still limited. Poor

infrastructure, lack of basic amenities like electricity, potable water, and digital resources continue to affect tribal education. The Pupil-Teacher Ratio (PTR) in tribal schools is often higher than the recommended 30:1, leading to inefficiencies in learning. Many tribal schools lack science labs, libraries, and sports facilities. Digital connectivity remains a challenge in remote tribal areas.

3. **Student Enrollment and Dropout Rates:** The Gross Enrollment Ratio (GER) for ST students is improving at the primary level but drops significantly at the secondary and higher education levels. Dropout rates among ST students are high due to economic constraints, child labor, cultural barriers, and migration of tribal families for livelihood. The lack of mother-tongue-based education in many states discourages tribal children from continuing their studies. Seasonal migration of tribal families disrupts students' education. Girls face higher dropout rates due to social norms and early marriages.



CHALLENGES IN EDUCATING TRIBALS

The Indian government has introduced several initiatives to improve education among tribal communities:

1. **Eklavya Model Residential Schools (EMRS):** Established in tribal-dominated areas to provide quality education. Aim to be at par with Navodaya Vidyalayas. Focus on STEM, skill development, and sports. Free education, boarding, and lodging for ST students. Over 700 schools planned across India.
2. **Pre-Matric and Post-Matric Scholarships:** Financial assistance to ST students to reduce economic barriers. Covers tuition fees, hostel

fees, and living expenses. Special provisions for girl students. Encourages higher education among tribal youth. Available for both school and college students.

3. **National Fellowship and Scholarship for Higher Education of ST Students:** Supports ST students pursuing MPhil and Ph.D. courses. Offers monthly stipends and research grants. Encourages participation in STEM and humanities research. Aims to increase ST representation in academia. Implemented under the Ministry of Tribal Affairs.
4. **Ashram Schools:** Residential schools providing free education, meals, and lodging. Designed for economically weaker tribal students. Focuses on vocational training alongside academics. Encourages cultural integration with modern education. Located in remote tribal regions for better access.
5. **Digital and Vocational Initiatives:** Schemes like SWAYAM, DIKSHA, and Skill India Mission aim to integrate digital learning and vocational training for tribal students. Smart classrooms and online resources are being developed. Focus on coding, digital literacy, and online education. Partnerships with private ed-tech companies for outreach. Skill development centers for job-oriented learning.

CHALLENGES IN EDUCATING TRIBALS

1. **Language Barrier:** Most tribal students speak indigenous languages, whereas education is predominantly in Hindi or English, leading to comprehension issues. Lack of multilingual textbooks in tribal languages. Low teacher proficiency in tribal dialects. Parents' illiteracy makes home-based learning difficult. Absence of trained translators and educators.
2. **Poor Infrastructure and Accessibility:** Remote tribal villages often lack proper roads, schools, and internet connectivity, making education inaccessible. Dilapidated school buildings discourage attendance. Limited transport facilities for students. Lack of drinking water and sanitation facilities. Power shortages affect

digital education efforts.

3. **Economic Constraints:** Many tribal families depend on daily wages, forcing children to drop out and work for financial support. Lack of financial aid awareness among parents. Cost of books, uniforms, and travel adds to dropout rates. Scholarships do not cover all expenses adequately. Seasonal migration disrupts education cycles.
4. **Cultural and Social Barriers:** Early marriages and gender norms restricting girls' education. Dependence on traditional occupations, making formal education less appealing. Discrimination and social stigma discourage tribal students from mainstream education. Lack of tribal representation in curricula, leading to alienation. Absence of role models from tribal communities in professional fields.
5. **Teacher Shortages and Quality of Education:** Insufficient trained teachers familiar with tribal cultures and languages. High teacher absenteeism due to difficult working conditions. Lack of continuous teacher training in culturally sensitive pedagogy. Rigid curricula that fail to integrate tribal knowledge systems. Limited access to digital learning tools, restricting modern education methods.

WAY FORWARD

1. **Mother-Tongue-Based Education:** Implementing multilingual education at the primary level can improve comprehension and retention. More textbooks and digital content in tribal languages. Recruitment of bilingual teachers. Inclusion of tribal folklore and history in curricula. State-specific policies for regional dialects.
2. **Strengthening Infrastructure:** More investments in schools, hostels, digital learning facilities, and sanitation facilities are required. Better connectivity and road networks. Improved solar-powered digital classrooms. Provision of bicycles and transport for students. Community-driven maintenance programs.

3. **Financial and Scholarship Support:** Expanding financial assistance programs for ST students beyond tuition fees. Easier access to student loans and stipends for higher education. Awareness campaigns about scholarships in tribal areas. Vocational training and entrepreneurship programs to ensure employability.
4. **Technology-Driven Learning:** Satellite education programs for remote tribal areas. Expansion of mobile and internet-based learning initiatives. Establishing smart classrooms and e-learning centers in tribal schools. Partnerships with NGOs and private sectors for digital literacy programs

CONCLUSION

Despite significant efforts by the government and NGOs, tribal education in India still faces many hurdles. Bridging the education gap requires targeted policy interventions, cultural sensitivity, and infrastructural improvements. A holistic approach, integrating formal education, skill development, and digital inclusion, can pave the way for a better future for India's tribal communities. Ensuring that education reaches the most vulnerable sections of society is not just a developmental goal but a step toward social equity and national progress.

**REFORMING WAQF LAWS:
PARLIAMENT'S 2025
INTERVENTION**



WHY IN THE NEWS?

In April 2025, the Parliament of India passed the Waqf (Amendment) Bill, 2025, introducing key changes to the governance, survey, and transparency of Waqf properties in India. The bill, with its social, legal, and political implications, became a subject of intense parliamentary debate and media attention. This article elaborates on the procedure of passing bills, the constitutional mandate, types of bills, and finally dives into the specifics of the Waqf (Amendment) Bill itself.



PROCEDURE OF PASSING BILLS IN THE INDIAN PARLIAMENT

The Indian Parliament follows a well-defined legislative process for introducing and passing bills. Here's a comprehensive breakdown:

1. **Drafting Stage:** A bill begins as a proposal by a ministry, often after stakeholder consultation. Drafts are vetted by the Ministry of Law and Justice for legal coherence.
2. **Cabinet Approval:** The draft bill is presented to the Union Cabinet for approval before tabling in Parliament.
3. **First Reading (Introduction Stage):** The bill is introduced in either House (except Money Bills, which only start in Lok Sabha). **Example:** The Waqf (Amendment) Bill, 2025 was introduced in the Lok Sabha by the Minister of Minority Affairs.
4. **Second Reading General Discussion:** Members discuss the general merits of the bill. **Committee Consideration (if referred):** A Parliamentary Standing or Select Committee scrutinizes the bill clause by clause. **Example:** The Data Protection Bill 2023 was referred to a Joint Committee of Parliament. **Clause-by-Clause Consideration:** The bill is debated and amended in the House.
5. **Third Reading:** The bill is debated in its final form and voted on. Minimal changes are allowed. Requires a simple majority (in the case of Ordinary Bills).
6. **Passage in Second House:** The same process is repeated in the other House. If the second House rejects the bill or fails to act, a joint sitting under Article 108 may be called.

7. Presidential Assent: Once both Houses pass the bill, it goes to the President of India.

The President can: Give assent Withhold assent Return (except Money Bills) for reconsideration

CONSTITUTIONAL MANDATE: ORIGIN, ADOPTION, AND RELEVANT ARTICLES

A. Origin and Adoption

The Constitution of India was adopted on 26th November 1949 and came into force on 26th January 1950. It established a bicameral legislature (Lok Sabha and Rajya Sabha) under Article 79.

B. Relevant Constitutional Articles

These articles ensure the sanctity, scrutiny, and structure of legislative practices in the world's largest democracy.

TYPES OF BILLS IN PARLIAMENT

- 1. Ordinary Bills:** Deal with general subjects like civil law, education, administration. Can be introduced in either House. Passed by simple majority. Example: The Waqf (Amendment) Bill, 2025 is an Ordinary Bill.
- 2. Money Bills (Article 110):** Concerned with taxation, borrowing, or expenditure from the Consolidated Fund of India. Can only be introduced in Lok Sabha with President's recommendation. Rajya Sabha has limited powers. Example: Finance Bill 2025.
- 3. Financial Bills:** Broader than Money Bills, also contain non-money clauses. Require approval of both Houses. Example: Appropriation (No. 2) Bill, 2023.
- 4. Constitutional Amendment Bills:** Related to amending provisions of the Constitution. Passed by a special majority under Article 368. Some amendments require ratification by half of the states. Example: 103rd Amendment (EWS Quota).

Article	Provision	Example
Art. 107	Procedure for passing bills	Used in framing the Waqf (Amendment) Bill
Art. 108	Joint sitting mechanism	Invoked for the Prevention of Terrorism Bill, 2002
Art. 110	Defines a Money Bill	Example: Finance Bill 2024
Art. 111	Presidential Assent	Farm Laws (Repeal) Bill, 2021 got quick assent
Art. 368	Amendment of Constitution	Example: GST Amendment (101st Amendment Act)

4. THE WAQF (AMENDMENT) BILL, 2025: FEATURES AND SIGNIFICANCE

S.No	Provision	Old Waqf Act (Before Amendment)	Waqf (Amendment) Bill, 2025
1	Survey Authority	Survey of Waqf property was conducted by the Waqf Board through the Survey Commissioner.	Survey to be conducted by the District Collector to ensure neutrality and remove arbitrary claims.
2	Declaration of Waqf Property	Properties could be declared Waqf based on oral evidence or vague historical records.	Declaration requires documentary evidence like registered waqf deed, government notification, etc.
3	Inclusion of Government Land as Waqf	No explicit bar; many government properties were claimed as Waqf.	Explicit prohibition on declaring Central/State Govt. lands as Waqf.

S.No	Provision	Old Waqf Act (Before Amendment)	Waqf (Amendment) Bill, 2025
4	Public Objection Mechanism	No structured provision for public objection during survey.	Introduces public notice and objection mechanism to raise concerns before final listing.
5	Digital Monitoring	Digitization was partial and non-mandatory; WAMSI portal used inconsistently.	Mandatory integration with WAMSI (Waqf Asset Management System of India) for transparency and digital record-keeping.
6	Burden of Proof	Burden to disprove Waqf claims lay on the challenger or land-owner.	Burden now lies on the Waqf Board to prove with documents that land is truly Waqf.
7	Encroachment Actions	Enforcement against encroachers was slow and Waqf Board dependent.	District Administration empowered for swift action against encroachment.
8	Transparency and Accountability	Complaints of misuse and non-disclosure of assets were common.	Mandatory audits, public disclosure, and asset mapping. Regular reporting to Parliament.
9	Litigation and Tribunal Access	Limited judicial recourse and Waqf Tribunal had wide powers.	Narrows scope of Tribunal, enhances role of Civil Courts, improves access to justice.
10	Scope of 'Waqf by User'	Properties frequently declared Waqf by "longstanding user claim".	Prohibits the use of "Waqf by User" without supporting historical documentation.

PLUTUS IAS
UPSC/PCS

THE KEY PROVISIONS ENHANCING WOMEN'S RIGHTS

SOCIO-ECONOMIC SUPPORT FOR WIDOWS, DIVORCED WOMEN, AND ORPHANS

- Waqf-alal-aulad now allows waqf income to support widows, divorced women, and orphans.
- Section 3(r)(iv) ensures financial security for these groups, aligning with Islamic welfare principles.

PROTECTION OF WOMEN'S INHERITANCE RIGHTS IN WAQF-ALAL-AULAD

- Female heirs are guaranteed their rightful share in family waqf.
- Section 3A(2) mandates securing women's inheritance rights before dedicating property as waqf, preventing circumvention of inheritance laws.

WOMEN'S REPRESENTATION IN WAQF GOVERNANCE

- Retains two Muslim women members in State Waqf Boards (Section 14) and the Central Waqf Council (Section 9).

PROMOTION OF GENDER JUSTICE AND EQUITY

- Strengthens economic support and inheritance rights, addressing long-standing gender inequalities.
- Aligns waqf administration with constitutional principles of equality and social welfare.

CONCLUSION

The Waqf (Amendment) Bill, 2025 is a critical legislative step in modernizing the management of religious endowments while protecting public and private property from wrongful encroachment. It reaffirms the principles of secularism, transparency,

and justice under the Indian Constitution. The bill also reflects the dynamic balance between religious rights and public interest, a core challenge in India's pluralistic democracy. By understanding its constitutional foundation, legislative process, and contemporary context, this bill serves as a case study in how democratic institutions evolve to address long-standing issues with constitutional tools.

DIGITAL PERSONAL DATA PROTECTION ACT, 2023



WHY IN THE NEWS?

The Digital Personal Data Protection Act (DPDA), 2023, continues to make headlines due to its pending implementation and the critical debates it has triggered. Although the Act was passed in August 2023, the government is yet to notify the rules for its enforcement. These are expected in 2024–25, and public consultations are currently underway. A

major point of contention is the broad exemptions granted to government agencies, which many privacy advocates and legal experts believe could lead to unchecked surveillance. This has reignited the long-standing debate between safeguarding national security and protecting individual privacy, especially in the wake of the Pegasus spyware revelations and ongoing allegations of state surveillance.

The Making Of The Digital Personal Data Protection Act, 2023



July 2017	MeitY constitutes an expert committee under the chairmanship of Justice BN Srikrishna
August 2017	- Supreme Court, while hearing the Aadhaar-case in Justice KS Puttaswamy vs Indian Govt, recognises right to privacy as a fundamental right; orders govt to introduce relevant law - Justice Srikrishna Committee on data protection constituted
July 2018	MeitY releases Justice Srikrishna Committee report and proposed draft Bill
December 2019	- Revised Personal Data Protection Bill introduced in Lok Sabha - The Bill referred to Joint Parliamentary Committee (JPC)
December 2021	JPC submits its report along with a new draft Bill — PDP Bill 2021
August 2022	The Indian Govt withdraws the draft PDP Bill 2021 from Lok Sabha
Nov 2022	MeitY releases a fresh new draft called DPDP Bill, 2022 for public consultation
August 2023	- Govt introduces DPDP Bill 2023 in Lok Sabha - Parliament enacts the Bill

WHAT IS DPDA-2023?

The Digital Personal Data Protection Act, 2023 (DPDA-2023) is a landmark Indian legislation that provides a structured framework for the protection and processing of digital personal data. Enacted in August 2023, it is designed to balance individual rights to data privacy with the need to process personal data for lawful and legitimate purposes such as national security, governance, and economic activities. The Act applies to data collected within India and also to foreign entities offering services or profiling individuals within Indian territory. It operationalizes the Supreme Court's recognition of privacy as a fundamental right under Article 21, as held in Justice K.S. Puttaswamy vs Union of India (2017).

KEY HIGHLIGHTS OF THE ACT 2023

1. Data Fiduciary and Data Principal: The Act

defines Data Fiduciary as the entity that determines the purpose and means of processing personal data and Data Principal as the individual to whom the data pertains. Fiduciaries are required to implement safeguards such as purpose limitation, data minimization, and accountability frameworks to prevent misuse.

2. Consent-Based Processing: Personal data must be processed only after obtaining explicit, informed, and freely given consent from the individual. Consent must be presented in clear and plain language and must include details about the purpose and categories of data collected.

3. Establishment of Data Protection Board (DPB): The Act establishes the Data Protection Board of India to monitor compliance, address grievances, and levy penalties. The DPB will function like a quasi-judicial body, similar to regulatory boards like the SEBI and TRAI, but concerns remain over its independence.

4. Grievance Redressal Mechanism: Data Principals can file complaints against misuse, denial of rights, or breaches with the concerned Data Fiduciary or escalate to the Board. Time-bound response mechanisms are mandated, enhancing accountability and reducing bureaucratic delays in user redressal.

5. Cross-Border Data Transfer: The Act allows transfer of personal data outside India to nations or territories notified by the Central Government based on their data security standards. This provision promotes global data exchange for businesses but raises questions about safeguards in less secure jurisdictions.

6. Penalties for Non-Compliance: Monetary penalties can go up to ₹250 crore for major violations like data breaches, unlawful processing, or failure to respond to user complaints. The penalty framework is tiered, making it proportionate to the severity and scale of non-compliance.

7. Government Exemptions: The Act allows the Central Government to exempt any of its

departments or agencies from the provisions in the interest of sovereignty, integrity, or public order. These sweeping powers may lead to opaque surveillance mechanisms unless subject to adequate judicial or parliamentary oversight.

IMPORTANCE OF DPDA ACT 2023

- 1. Operationalises Right to Privacy (Article 21):** The Act is India's legislative response to the Puttaswamy judgment, providing statutory backing to privacy as a fundamental right. It is a crucial tool to counter surveillance capitalism and prevent indiscriminate data collection by both state and non-state actors.
- 2. Modernises India's Digital Governance Framework:** It replaces outdated provisions of the IT Act, 2000, offering a modern approach in line with digital realities. It builds the foundation for a "Digital India 2.0" ecosystem with legal safeguards and trust-based interactions.
- 3. Encourages Startups and Tech Innovation:** Clear compliance norms enable tech companies and startups to build privacy-respecting products without fear of legal ambiguity. This enhances India's image as a responsible digital innovation hub in the global tech ecosystem.
- 4. Enables Global Trade and Interoperability:** By aligning with international frameworks like GDPR, the Act enables data adequacy negotiations with the EU and other jurisdictions. It improves ease of doing business for multinational companies operating in India.
- 5. Empowers Individuals with Data Rights:** Individuals can now request correction, erasure, and access to their personal data, thus shifting the control of data from corporations to citizens. It reflects a broader movement toward data sovereignty and ethical digital ecosystems.
- 6. Creates a Compliance-Driven Ecosystem:** By requiring fiduciaries to maintain records and publish privacy notices, it strengthens transparency and auditability in data processing. This fosters user trust and enhances digital participation.

- 7. Protects Children's Data and Rights:** The Act mandates verifiable parental consent for processing children's data and prohibits tracking or targeted ads for minors. It is in line with global conventions like the UN Convention on the Rights of the Child.

KEY ISSUES IN THE DPDA 2023

- 1. Government Overreach and Exemptions:** The law grants the government wide powers to exempt its agencies from any or all provisions without strong checks. Critics argue this undermines the principle of informational self-determination, especially in sensitive cases like surveillance.
- 2. Weak Regulatory Autonomy:** The Data Protection Board is not constitutionally independent, as its members and functions are largely determined by the executive. This may compromise its ability to act against powerful state or private actors in case of violations.
- 3. Lack of Sensitive Data Classification:** Unlike GDPR, the DPDA does not differentiate between sensitive and general personal data, reducing the robustness of protection for critical information. This could lead to equal treatment of trivial and intimate data, compromising user safety.
- 4. Absence of Data Localization Mandates:** The Act drops earlier provisions requiring mandatory storage of certain data within India, citing ease of business. However, absence of localization can lead to jurisdictional and enforcement challenges during data breaches.
- 5. Limited User Rights Compared to Global Norms:** The "right to be forgotten" is vaguely defined and lacks clear criteria or procedures for invocation. Similarly, there's no provision for data portability which could have empowered users to switch platforms seamlessly.
- 6. Ambiguous Clauses and Discretionary Language:** Phrases like "reasonable purpose" or "public interest" are undefined, enabling subjective interpretation. This legal ambiguity might result in selective enforcement or misuse by authorities or corporations.

- 7. No Clear Compensation for Users:** The Act does not provide a statutory mechanism for individuals

RECOMMENDATIONS

- 1. Ensure Institutional Independence of the DPB:** Appointments should be vetted by a multi-stakeholder committee involving judiciary and civil society to avoid politicisation. Board members should have fixed tenures, and their functioning must be insulated from executive interference.
- 2. Narrow Down Government Exemptions:** Exemptions should be allowed only under specific, necessary, and proportionate conditions, with periodic judicial oversight. Incorporating sunset clauses for exemptions can prevent long-term misuse.
- 3. Reintroduce Sensitive Data Categorisation:** A tiered protection system for health, biometric, and financial data should be incorporated, similar to GDPR's Article 9. This will ensure contextual safeguards are applied based on risk profiles.
- 4. Mandate Sectoral Data Localization:** Critical sectors like finance, health, and defence must be subject to mandatory data storage in India to ensure sovereignty. Local copies should be retained for regulatory access and forensic auditing.
- 5. Expand Data Principal Rights:** Incorporate right to data portability, algorithmic transparency, and the right to object to profiling as part of user empowerment. These rights will enhance user control in a rapidly evolving AI-driven digital ecosystem.
- 6. Clarify Legal Terminology and Scope:** Define ambiguous terms like "reasonable purposes" or "public order" in the Act or rules to avoid arbitrary interpretation. Codified standards will also assist in judicial review and compliance assessments.
- 7. Introduce Compensation Framework for Victims:** A statutory body or tribunal must be

empowered to grant financial compensation in cases of willful or negligent data breaches. This will ensure a remedial justice mechanism for affected individuals.

CONCLUSION

The Digital Personal Data Protection Act, 2023 is a pioneering attempt by India to regulate personal data in the age of surveillance capitalism and digital platforms. While it lays the foundational framework for digital privacy, a balance must be struck between individual rights and state or corporate interests. The Act must evolve into a more citizen-centric, transparent, and enforceable legal instrument, especially in light of rising cybersecurity threats, algorithmic decision-making, and cross-border data flows. As India aspires to become a global tech leader, a strong, rights-based, and trust-enhancing data protection regime is not just desirable, but indispensable

**COMPTROLLER AND
AUDITOR GENERAL OF
INDIA (CAG)**



WHY IN THE NEWS?

The Comptroller and Auditor General (CAG) of India has recently released several audit reports that have garnered significant attention due to their revelations of systemic inefficiencies and financial irregularities across various sectors. Notably, the CAG's audit of Delhi's Mohalla Clinics uncovered that 70% of patients received consultations lasting less than a minute, and only 175 out of the required 11,191 inspections were conducted between March 2018 and March 2023, indicating serious lapses in healthcare service delivery. In the realm of infrastructure, the CAG's compliance audit report highlighted delays and cost overruns in the Mancheswar Carriage Repair Workshop and the CSMT-Kurla rail line doubling project, pointing to inefficiencies in project execution. Furthermore, the audit of Delhi's excise policy revealed significant revenue losses amounting to ₹2,026 crore due to procedural violations and lack of transparency in license issuance. These findings underscore the

critical role of the CAG in promoting accountability and transparency in public administration, prompting calls for timely action and reforms to address the highlighted issues.



WHAT IS CAG?

- 1. Constitutional Authority:** The CAG is a constitutional body established under Article 148 of the Indian Constitution. It provides for the appointment, term, and duties of the CAG. CAG is often referred to as the guardian of the public purse. The independence of CAG is ensured by security of tenure and salary, which cannot be altered to their disadvantage during service.
- 2. Audit Authority:** As per Article 149, the CAG's duties and powers are prescribed by the Comptroller and Auditor-General's (Duties, Powers and Conditions of Service) Act, 1971. The office audits all receipts and expenditures of the Union and State Governments, including bodies substantially financed by the government.
- 3. Audit of Public Sector Enterprises (PSEs):** Under Section 19 and 20 of the 1971 Act, CAG audits central and state PSUs like BHEL, LIC, etc. The 2025 report on Air India's privatization process pointed out undervaluation of assets and procedural lapses.
- 4. Compliance and Performance Audits:** Compliance audit checks adherence to laws, rules, and policies. Performance audit evaluates efficiency and effectiveness. Example: In 2024, the CAG audit on PM KUSUM Scheme revealed

only 18% achievement against targets, leading to a parliamentary discussion.

- 5. Audit of Autonomous Bodies and NGOs:** CAG can audit bodies receiving substantial government grants (above 25%) under Section 14 of the 1971 Act. Example: 2025 audit of NGOs under National Health Mission found discrepancies in fund usage in Rajasthan and Assam.
- 6. Advisory Role:** Though not binding, CAG's audit reports are used by Public Accounts Committee (PAC) for scrutiny and recommendations. PAC 2025 extensively used the CAG's audit report on the Defence Capital Budget to flag procedural weaknesses.
- 7. Audit of Environmental and IT Projects:** New age audits include environmental audits (Swachh Bharat), climate finance, and IT system audits (Aadhaar, GSTN). Example: 2025 audit of Smart Cities Mission revealed cost escalations and delays in 27 cities.
- 8. Support to Legislative Oversight:** CAG strengthens parliamentary control over public expenditure, ensuring accountability of the executive. It provides crucial inputs to committees like PAC and Estimates Committee, reinforcing checks and balances in democracy.

PERFORMANCE ANALYSIS OF CAG

- 1. Landmark Investigative Audits:** Audits like the 2G spectrum (2010), Coalgate (2012), and CWG scam (2010) proved instrumental in triggering systemic reforms and judicial actions. These audits made CAG a household name and highlighted its institutional relevance.
- 2. Increased Scope and Methodology:** Adoption of data analytics, AI-based risk mapping, and real-time audit in recent years has enhanced efficiency. 2025 audit of the PM Gati Shakti project used satellite mapping and real-time dashboards to track performance.
- 3. Quality of Recommendations:** Reports often lead to course corrections and improved governance. After the 2023 audit of rural electrification, guidelines for village electrification were modified to ensure better targeting.

4. **Audit of COVID-19 Expenditures:** CAG's audit of vaccine procurement and health infra spending during COVID-19 showed irregularities in fund allocation and PPE kit procurement. It highlighted lack of transparency in emergency procurement.
5. **Audit Responsiveness:** With faster submission of reports, CAG's relevance in policy cycles has increased. The turnaround time of audit reports has reduced from 18 months to 6 months in several ministries, per 2025 performance review.
6. **International Recognition:** CAG of India was elected to the INTOSAI Governing Board (2024-2030). India's leadership in IT audit techniques is now being emulated by African and ASEAN nations.
7. **Parliamentary Impact:** PAC and State legislatures regularly use CAG reports to summon officers and review expenditures. In 2025, West Bengal's Assembly referred the CAG's audit of Jal Jeevan Mission to its PAC, leading to administrative reshuffling.

LIMITATIONS AND CRITICISM OF THE OFFICE OF CAG

1. **Delayed Audit Reports:** Delays in report submission reduce relevance. Example: The 2023 audit of the Defence Procurement Policy was tabled after two years, limiting its utility in correcting procurement flaws.
2. **Lack of Real-Time Auditing Power:** CAG cannot do pre-audit or real-time auditing, which means misappropriations are caught only after the fact. This limits preventive action.
3. **Overburdened Office:** With increasing responsibilities—IT audits, environmental audits, cooperative audits—the existing staff is overstretched. The 2025 CAG Staffing Report showed a 22% vacancy in audit cadres.
4. **Lack of Enforcing Power:** CAG can only recommend, not penalize or enforce its findings. PAC's reliance on ministries for follow-up leads to weak enforcement of accountability.
5. **Political Misuse:** Some critics allege selective leaks or misinterpretation of figures for political mileage. Example: The 2G loss estimate controversy led to criticism of exaggeration,

7. **Auditing Climate and SDG Expenditures:** Make climate finance audits mandatory. Example: In 2025, Kerala began using a Green Audit Matrix with CAG's technical support.

CONCLUSION

The Comptroller and Auditor General of India is a cornerstone of India's democratic accountability mechanism. With roots in the Constitution and wings spread across every level of government, the CAG ensures that public money is used legally, wisely, and effectively. Despite its constitutional independence and wide mandate, it faces challenges like delayed audits, limited enforcement power, and the growing complexity of fiscal arrangements. However, with strategic reforms, digitization, and legislative support, the CAG can transform into a real-time fiscal watchdog of the 21st century. As India embarks on the Amrit Kaal towards 2047, ensuring financial accountability, governance efficiency, and public trust requires a stronger and more agile CAG, backed by legal empowerment, institutional support, and technological augmentation.

PRELIMS QUESTIONS:

1. **Consider the following statements regarding the National Legal Services Authority (NALSA)**

1. NALSA was constituted under the Legal Services Authorities Act, 1987.
2. NALSA primarily provides free legal aid only to women and children.
3. The Chief Justice of India is the Patron-in-Chief of NALSA.

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. **Consider the following statements about the Forest Rights Act (FRA), 2006:**

1. The FRA grants Individual Rights to forest-dwelling communities for self-cultivation and

habitation.

2. The FRA does not provide protection against eviction for forest-dwelling communities.
3. The Gram Sabha is not involved in the recognition of forest rights under the FRA.

Which of the above statements is correct?

- A. 1 and 2 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1 only

3. With reference to the Foreign Contribution (Regulation) Act (FCRA), 2010, consider the following statements:

1. FCRA applies only to NGOs receiving foreign funds.
2. Under FCRA, foreign funds must be received in a designated account in the State Bank of India, New Delhi.
3. FCRA allows sub-granting of foreign funds to other FCRA-registered NGOs.
4. The administrative expenses of an organization under FCRA cannot exceed 20% of the foreign contribution received.

Which of the statements given above are correct?

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

4. What is the primary objective of the National Education Society for Tribal Students (NESTS)?

- A. Establishing private schools in urban areas
- B. Providing quality education to tribal students through Eklavya Model Residential Schools (EMRS)
- C. Promoting higher education among general category students
- D. Conducting competitive exams for tribal students.

5. With reference to the Waqf (Amendment) Bill, 2025, consider the following statements:

1. It prohibits the declaration of any Central or State government land as Waqf property.

2. The Bill empowers the District Collector to conduct waqf property surveys.
3. The amendment allows oral evidence as the primary source to declare a Waqf property.

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

6. Consider the following statements with respect to the Digital Personal Data Protection Act, 2023:

1. The Act applies to both digital and non-digital personal data processed offline.
2. The Act provides for the establishment of a Data Protection Board of India.
3. Government bodies are completely exempt from the provisions of the Act.
4. The Act incorporates the principle of data minimization.

Which of the statements given above is/are correct?

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

7. The Comptroller and Auditor General (CAG) of India performs which of the following functions?

1. Audits the accounts of the Union and State governments.
2. Audits the accounts of corporations financed by the government.
3. Audits private companies receiving foreign direct investment.
4. Acts as a guide, friend, and philosopher to the Public Accounts Committee (PAC).

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

ANSWER

1. C	2. A	3. B	4. B	5. A	6. C	7. A
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MAINS QUESTIONS:

1. Discuss the role of the National Legal Services Authority (NALSA) in promoting access to justice in India. Examine its achievements, ongoing challenges, and suggest measures to strengthen its effectiveness.

(250 words, 15 marks)

2. The Forest Rights Act (FRA) 2006 has been a significant legislation for forest-dwelling communities in India, but its implementation has faced several challenges. Discuss the issues in the implementation of the FRA and suggest measures to strengthen its enforcement.

(250 words, 15marks)

3. Discuss the objectives and key provisions of the Foreign Contribution (Regulation) Act (FCRA), 2010. In light of recent amendments, critically analyze the challenges faced by NGOs in complying with FCRA.

(250 words, 15marks)

4. What are the key challenges in ensuring quality education for tribal students in India? Suggest measures to improve accessibility and learning outcomes.

(250 words, 15 marks)

5. How does the Waqf (Amendment) Bill, 2025 strike a balance between minority rights and public land protection? Discuss with constitutional and legal references.

(250 words, 15 marks)

6. Discuss the role of the Digital Personal Data Protection Act, 2023 in India's vision of becoming a global digital economy. How can the Act foster digital trust and ensure international data flow compliance?

(250 words, 15 marks)

7. Discuss how the office of the CAG can strengthen its role in auditing new-age sectors like digital payments, climate finance, and social welfare schemes.

(250 words, 15marks)


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INDIA – NEW ZEALAND JOINT STATEMENT



WHY IN THE NEWS?

New Zealand's Prime Minister Christopher Luxon is on his first official visit to India at PM Narendra Modi's invitation to strengthen bilateral ties. Key highlights include launching Free Trade Agreement (FTA) negotiations, signing a Defence Cooperation MoU, and enhancing collaboration in trade, investment, education, and security. Discussions also covered regional and global issues like Indo-Pacific stability, the Ukraine war, and counterterrorism. PM Luxon is the Chief Guest at the 10th Raisina Dialogue, delivering the Inaugural Keynote Address. This visit marks a significant step in deepening India-New Zealand relations.



INDIA AND NEW ZEALAND TIES

1. **Economic & Trade:** Restarted FTA talks under NZ's "Opening Doors to India" policy. Signed AEO-MRA to ease trade.

2. **Defense & Security:** NZ signed a Defense MoU focusing on joint exercises, maritime security, and counterterrorism. NZ supports the Indo-Pacific Oceans Initiative (IPOI).
3. **Global Cooperation:** NZ backs India's UNSC bid and NSG entry. We share a commitment to a free, open Indo-Pacific and UNCLOS.
4. **Education & Diaspora:** Renewed Education MoU, expanding student & academic exchanges. Indian diaspora forms 6% of NZ's population.
5. **Climate Cooperation:** NZ supports India's ISA, CDRI & Paris Agreement, aiding India's clean energy transition.

AREAS OF COOPERATION BETWEEN INDIA AND NEW ZEALAND

1. **Trade & Economy:** Negotiations for a Free Trade Agreement (FTA) under NZ's Opening Doors to India Policy. Authorized Economic Operators (AEO) Agreement to ease the movement of goods. Potential for collaboration in agriculture, dairy, digital economy, and pharmaceuticals.
2. **Defense & Security:** Defense MoU signed for military exercises, naval visits, and joint training. NZ's interest in India's Indo-Pacific Oceans Initiative (IPOI). Scope for enhancing maritime security, intelligence sharing, and counterterrorism efforts.
3. **Education & Workforce:** Renewed Education Cooperation Agreement to strengthen academic and vocational ties. India is NZ's largest source of skilled migrants and the second-largest source of international students. Opportunities to expand student exchange programs and research collaborations.

- 4. Climate & Sustainability:** NZ supports India's membership in the International Solar Alliance (ISA) & Coalition for Disaster Resilient Infrastructure (CDRI). Joint cooperation on UN Sustainable Development Goals (SDGs) & Paris Climate Agreement. Potential for climate tech, renewable energy, and sustainable farming partnerships.
- 5. Sports & Cultural Exchange:** Sports MoU signed to enhance sporting collaborations. Plans to

celebrate 100 years of India-NZ sports relations in 2026. Recognition of the Indian diaspora (6% of NZ's population) in strengthening ties.

- 6. Technology & Innovation:** NZ's expertise in AI, fintech, and digital economy complements India's booming IT sector. Potential for collaboration in agritech, biotech, and clean energy technology. Expansion of startup ecosystems and digital commerce partnerships.

EVALUATIONS OF INDIA AND NEW ZEALAND

Aspect	Strengths & Opportunities	Challenges & Weaknesses	Future Prospects
Trade & Economy	Renewed push for FTA Enhanced economic partnerships	FTA deadlock over dairy & tariffs Low trade volume (\$1.75 billion)	Sign an interim FTA like India-Australia ECTA Boost sector-specific trade deals
Strategic & Security	A shared vision for a free & open Indo-Pacific Defense MoU & IPOI collaboration	NZ's reliance on China could limit deeper strategic ties	Strengthen defence & maritime security cooperation Joint military exercises & intelligence sharing
Education & Workforce	India is NZ's largest source of skilled migrants. The 2nd-largest source of international students	– Recognition of Indian degrees and work rights needs improvement	Expand student exchanges & research partnerships Strengthen vocational training programs
Climate & Sustainability	NZ's expertise in green tech & renewable energy Supports India's clean energy goals	– Limited joint projects despite alignment	Collaborate on climate tech, sustainable farming, & disaster resilience
Cultural & Diaspora	Strong Indian diaspora (6% of NZ's population) Cultural & sports ties improving	Concerns over pro-Khalistan activities in NZ	Promote Indian culture & heritage events in NZ Strengthen diaspora engagement
Market & Innovation	NZ's tech & innovation ecosystem offers potential	– India sees NZ primarily for tourism, ignoring tech & innovation potential	Boost business delegations, trade fairs & workshops Enhance digital economy & AI collaborations

SIGNIFICANCE OF NEW ZEALAND FOR INDIA INDO- PACIFIC

1. **Strategic Partner in the Indo-Pacific:** Supports India's vision for a free, open, and inclusive Indo-Pacific. Potential collaboration in maritime security, freedom of navigation, and regional stability.
2. **Maritime Security & Defense Cooperation:** New Zealand's strategic location in the South Pacific complements India's Indo-Pacific strategy. The Defense MoU paves the way for joint exercises, naval visits, and intelligence sharing, and cooperation under the Indo-Pacific Oceans Initiative (IPOI) is enhanced.
3. **Economic & Trade Opportunities:** Expanding trade relations through negotiations on a Free Trade Agreement (FTA). NZ's expertise in agritech, dairy, and sustainable farming can support India's agricultural sector. Strengthening the digital economy and fintech collaborations.
4. **Climate & Sustainable Development:** Partnering in renewable energy and climate resilience under the International Solar Alliance (ISA) and Coalition for Disaster Resilient Infrastructure (CDRI). Joint initiatives for clean energy, disaster management, and carbon neutrality.
5. **People-to-People & Cultural Ties:** The Indian diaspora constitutes 6% of NZ's population, fostering deep cultural and economic ties and strengthening educational exchanges, student mobility, and tourism.
6. **Balancing China's Influence:** India-NZ cooperation can help counterbalance China's growing influence in the Pacific region. Potential for collaboration on infrastructure projects and supply chain diversification.

AREAS OF CONCERN

1. **Stalled FTA Negotiations:** Free Trade Agreement (FTA) talks started in 2010 but stalled due to India's high tariffs on dairy and agricultural products.
2. **Non-Tariff Barriers (NTBs):** Indian exports (e.g., grapes, okra, mangoes) face strict Sanitary and

Phytosanitary (SPS) restrictions in New Zealand. Lack of Mutual Recognition Arrangement (MRA) for standards and certifications.

3. **Low Trade Volumes:** Bilateral trade remains limited, amounting to only USD 1.75 billion (2023-24), with an imbalance in exports and imports.
4. **Limited Market Awareness:** New Zealand sees India mainly as a tourism market, while India underutilises NZ's strengths in technology, innovation, and sustainability.
5. **Geopolitical Differences:** New Zealand's foreign policy is aligned with Western allies (Australia, the US) and is economically dependent on China, sometimes leading to differences with India.
6. **Pro-Khalistan Activities:** India has raised concerns about certain extremist elements in New Zealand promoting anti-India sentiments.
7. **Lack of Defense Engagement:** Despite recent agreements, defence and security cooperation remain limited compared to India's engagements with Australia and the US.

WAY FORWARD

1. **Revive FTA Negotiations:** Resolve trade barriers, particularly in dairy and agriculture, through sector-specific agreements. Explore an Early Harvest Agreement or interim trade pact similar to the India-Australia ECTA. Enhance Market Access & Trade Relations
2. **Fast-track Mutual Recognition Arrangements (MRA) for standards and certifications:** Reduce Non-Tariff Barriers (NTBs) to facilitate smoother trade in agriculture, pharma, and technology. Organise trade fairs, business delegations, and awareness campaigns for better market understanding.
3. **Deepen Defense & Security Cooperation:** Strengthen maritime security collaboration under the Indo-Pacific Oceans Initiative (IPOI). Conduct joint military exercises, intelligence sharing, and naval visits for regional stability. Enhance counter-terrorism efforts to address extremism concerns.

4. Leverage Climate Change & Sustainability

Expertise: Collaborate on clean energy projects, sustainable agriculture, and disaster resilience under initiatives like CDRI and ISA. Use New Zealand's climate tech and renewable energy expertise to support India's green transition.

5. Expand Education & Skill Development Ties:

Strengthen academic partnerships, research collaborations, and student exchange programs. Utilise New Zealand's vocational training to enhance skill development in India

6. Boost Cultural & Diaspora Engagement:

In 2026, celebrate 100 years of sports relations to enhance people-to-people ties and ensure the safety and welfare of the Indian diaspora, students, and tourists in New Zealand.

7. Enhance Strategic Cooperation in the Indo-Pacific:

Work together on rules-based maritime order, regional stability, and UNCLOS compliance. Leverage India's growing presence in the Indo-Pacific for mutual security and economic interests.

CONCLUSION

India and New Zealand share a growing partnership across trade, defence, education, climate action, and cultural exchange. While challenges such as stalled FTA negotiations, trade barriers, and geopolitical differences persist, both nations have strong potential to deepen cooperation. Strengthening economic ties through a trade agreement, enhancing defence engagement under the Indo-Pacific framework, and leveraging climate and technology partnerships can significantly boost relations. A proactive approach, including sector-specific trade agreements, deeper maritime collaboration, and people-to-people exchanges, will help unlock new opportunities. By addressing concerns like market awareness and security cooperation, India and New Zealand can build a long-term, resilient, and mutually beneficial relationship in the evolving Indo-Pacific landscape.

INDIA-RISING POWER THROUGH HUMANITARIAN AID



WHY IN THE NEWS?

India has launched Operation Brahma to provide urgent humanitarian aid to Myanmar following a devastating 7.7-magnitude earthquake. Two C-17 aircraft carrying a 118-member Indian Army Field Hospital Unit and 60 tonnes of relief material have landed in Myanmar. A second C-130 aircraft also arrived with 38 NDRF personnel and additional aid. The Indian Army is setting up a 60-bed Medical Treatment Centre to assist the injured. With the death toll rising to 694 and over 1,670 injured, India's swift response reinforces its role as a first responder in regional crises.



WHAT IS HUMANITARIAN ASSISTANCE/AID?

Humanitarian assistance (or aid) is aid and action aimed at saving lives, alleviating suffering, and preserving human dignity during and after crises caused by natural disasters or human-made conflicts. It also includes efforts to prevent and prepare for such emergencies. Humanitarian assistance is guided by the principles of humanity, impartiality, neutrality, and independence, ensuring that aid is provided solely based on need, without discrimination or political influence.

INDIAN RISING'S ROLE IN HUMANITARIAN AID

Operation Name	Country	Year	Support Provided
Operation Maitri	Nepal	2015	Earthquake relief – rescue teams, medical aid, relief supplies
Operation Insaniyat	Bangladesh	2017	Aid for Rohingya refugees – food, medical supplies
Operation Sahayata	Mozambique	2019	Cyclone Idai relief – food, water, medical supplies
Operation Vanilla	Madagascar	2020	Cyclone Diane relief – food and medical aid
Operation Samudra Setu	Multiple (Indian Ocean Region)	2020	COVID-19 evacuation – repatriation of stranded Indians
Vaccine Maitri	Global (100+ countries)	2021	COVID-19 vaccine supply – Covaxin and Covishield distribution
Operation Devi Shakti	Afghanistan	2021-2022	Evacuation of Indian nationals, humanitarian aid (wheat, medicine)
Operation Ganga	Ukraine & Poland	2022	Evacuation of stranded Indian students during the Ukraine war
Operation Dost	Türkiye & Syria	2023	Earthquake relief – medical teams, relief materials
Operation Kaveri	Sudan	2023	Conflict evacuation – rescue of stranded Indians, food aid
Operation Uphaar	Sri Lanka	2022	Economic crisis support – fuel, medicine, financial assistance
Operation Samudra Prahari	Maldives	2024	Water crisis – emergency drinking water supply
Operation Brahma	Myanmar	2024-2025	Earthquake relief – medical teams, field hospitals, relief supplies

APPROACHES TOWARDS HUMANITARIAN AID

Approach	India	Western Powers (US, EU, UK, etc.)
Aid Philosophy	“Neighbourhood First” & South-South Cooperation – Focus on regional and Global South assistance	Western-led Global Humanitarian Framework – Extensive aid worldwide
Response Mechanism	Rapid response via military & diplomatic channels (e.g., Indian Navy, Air Force, MEA coordination)	UN-led interventions, NGOs, and military involvement
Focus Areas	Disaster relief, economic aid, medical support, and evacuation missions	Development aid, conflict resolution, refugee assistance, and peacekeeping

Approach	India	Western Powers (US, EU, UK, etc.)
Execution	Direct government-to-government aid, bilateral agreements	Primarily channelled through multilateral organizations (UN, WHO, NGOs)
Political Influence	Humanitarian aid with non-interference policy, prioritizing sovereignty	Aid is often linked to geopolitical interests and foreign policy objectives
Major Initiatives	Operation Maitri, Vaccine Maitri, Operation Ganga, Operation Dost	USAID, European Civil Protection and Humanitarian Aid Operations (ECHO), UN-led programs
Financial Assistance	Grants, concessional loans, infrastructure aid (e.g., building schools, hospitals)	Large-scale financial grants, loans, and investments through IMF, World Bank
Military & Disaster Relief	Indian Armed Forces-led disaster response (e.g., Indian Navy's HADR missions)	NATO and Western military-led interventions in crises
Healthcare & Vaccine Aid	Vaccine Maitri – COVID-19 vaccine supply to 100+ countries	WHO-backed global vaccine initiatives (e.g., COVAX program)
Long-term Commitment	Sustained development assistance & regional capacity-building	Often project-based, with conditional financial aid or political expectations

WHAT IS THE ISSUE WITH HUMANITARIAN AID

- 1. Political Manipulation:** Aid is sometimes used as a political tool, restricting access to marginalized groups.
- 2. Corruption & Mismanagement:** Funds and resources can be misused, preventing aid from reaching those in need.
- 3. Dependency:** Long-term reliance on aid discourages local self-sufficiency and development.
- 4. Security Risks:** Aid workers face attacks, kidnappings, and restricted access in conflict zones.
- 5. Unequal Distribution:** Some crises receive more attention and funding than others.
- 6. Delays & Bureaucracy:** Excessive red tape slows aid delivery, worsening crises.
- 7. Funding Gaps:** Many operations remain underfunded due to declining donor interest.

8. Economic & Environmental Impact: Aid can disrupt local markets and create waste.

9. Diversion by Armed Groups: Militants steal or control aid to fund their activities.

10. Lack of Long-Term Solutions: Short-term relief often overshadows sustainable development.

HUMANITARIAN AID IS A REAL AID IN THE SPIRIT

Humanitarian aid is the purest form of support, driven by the principles of humanity, neutrality, and solidarity. It provides lifesaving assistance to those affected by conflicts, natural disasters, and health crises, ensuring their survival, dignity, and recovery. Despite challenges like political interference, security risks, and funding shortages, humanitarian aid remains a lifeline for millions. When delivered with impartiality and efficiency, it empowers communities, restores hope, and reflects the true spirit of humanity—helping people in their darkest hours without discrimination or self-interest.

CONCLUSION

Humanitarian aid stands as a beacon of hope, reflecting the true spirit of compassion and solidarity. India's proactive approach through operations like Brahma, Maitri, Ganga, and Dost highlights its commitment to regional stability and global welfare. While humanitarian aid plays a crucial role in saving lives and rebuilding communities, it is often hindered by political agendas, funding challenges, and logistical barriers. To make humanitarian assistance more effective, impartial, and sustainable, nations must prioritize transparency, long-term development, and local empowerment. True humanitarianism lies not just in emergency relief but in fostering resilience, dignity, and self-sufficiency for affected populations. Aid should transcend politics and focus on humanity, ensuring no one is left behind.

**INDIA AND SAUDI ARABIA
STRENGTHENING BONDS
FOR A NEW ERA**



WHY IN THE NEWS?

Prime Minister Narendra Modi cut short his two-day visit to Saudi Arabia after a terrorist attack in Pahalgam,

EVOLUTIONS OF INDIA-SAUDI ARABIA TIES

Jammu and Kashmir, killed over 20 people, mostly tourists. Mr. Modi, who arrived in Jeddah, delayed his scheduled meeting with Crown Prince Mohammed bin Salman to assess the situation in Kashmir. Despite the tragic developments, he held bilateral talks with the Crown Prince, participated in the Strategic Partnership Council meeting, but skipped the official dinner. Originally scheduled to return later, the Prime Minister decided to return to India early. The visit reaffirmed the strong bilateral ties between India and Saudi Arabia, even as urgent domestic developments required Mr. Modi's early return.



Phase	Period	Key Highlights
Ancient Linkages	Pre-1947	Maritime trade, cultural exchanges, and religious ties (pilgrimage to Mecca).
Post-Independence Era	1947–2000	Diplomatic relations established; focus on oil trade and Indian diaspora welfare. Limited political engagement.
Strategic Shift	2000–2010	2006 Delhi Declaration elevated ties to a “Strategic Energy Partnership”; counterterrorism and economic cooperation were initiated.
Strategic Partnership Era	2010–2019	2010 Riyadh Declaration upgraded ties to “Strategic Partnership”; growth in defence, security, and diaspora welfare engagement.
Transformational Phase	2019–Present	Formation of Strategic Partnership Council (2019); deepening ties in energy transition, fintech, digital economy, defence, and space cooperation; alignment with Saudi Vision 2030.

INDIA-SAUDI ARABIA AREAS OF CONVERGENCE

1. **Energy Security and Transition:** Saudi Arabia remains India's 3rd largest crude oil supplier (14.3% of imports in FY 2023–24) and 3rd largest LPG supplier (18.2%). Both countries are expanding cooperation into green hydrogen production, renewable energy R&D, and energy transition technologies.
2. **Strategic and Defence Cooperation:** Defence ties have deepened with the first joint land exercise EX-SADA TANSEEQ held in 2024. New agreements focus on joint defence manufacturing, cybersecurity, and intelligence-sharing to enhance strategic security cooperation.
3. **Trade and Investment Growth:** Bilateral trade reached USD 42.98 billion in FY 2023–24. Saudi Arabia's Public Investment Fund (PIF) plans major investments in Indian logistics, infrastructure, and the IMEC trade corridor, while Indian companies are exploring sectors in Saudi Arabia under Vision 2030.
4. **Digital and Technology Collaboration:** India and Saudi Arabia have agreed to co-develop digital public platforms similar to UPI and Aadhaar. Collaboration in emerging technologies like AI, blockchain, and semiconductor innovation is also expanding rapidly.
5. **Space and Healthcare Cooperation:** Both countries signed a fresh MoU on space cooperation for peaceful uses (satellite data sharing, lunar missions). In healthcare, they agreed to work on fast-tracking regulatory approvals and strengthening pharma and biotech innovation.

INDIA-SAUDI ARABIA AREAS OF CONCERN

1. **Geopolitical Divergences:** Saudi Arabia's close ties with Pakistan often contrast with India's security interests, especially on Kashmir-related matters.
2. **Energy Dependency Risks:** India's heavy reliance on Saudi oil (14.3% of crude imports) makes it vulnerable to global price volatility and supply

disruptions.

3. **Slow Realisation of Investment Promises:** Saudi commitments of billions through the Public Investment Fund (PIF) are delayed or under-implemented, affecting economic momentum.
4. **Labour Rights and Welfare Issues:** Despite reforms, Indian workers (2.6 million strong) still face problems under the evolving post-Kafala labour system, like wage disputes and lack of legal recourse.
5. **Religious and Cultural Sensitivities:** Challenges persist over Hajj quota negotiations, rights of women pilgrims, and Saudi Arabia's strict socio-cultural norms, limiting India's soft power outreach.

RECOMMENDATION TO STRENGTHEN TIES

1. **Diversify Economic Cooperation:** Expand beyond energy to sectors like technology, fintech, healthcare, renewable energy, and AI. Strengthen Saudi investments in Indian infrastructure and start-ups.
2. **Strengthen Defence & Security:** Enhance joint defence production, military exercises, and cybersecurity cooperation. Increase maritime security collaboration in the Indian Ocean.
3. **Improve Labour & Diaspora Welfare:** Continue labour reforms to improve worker rights and dispute resolution. Promote safe migration policies and skill recognition for Indian workers.
4. **Foster Cultural & Educational Ties:** Promote cultural diplomacy, academic exchanges, and tourism. Expand Bollywood-Saudi film collaborations.
5. **Collaborate on Technology & Innovation:** Build joint innovation hubs and focus on AI, blockchain, and clean energy. Leverage India's digital expertise (e.g., UPI, Aadhaar) to support Saudi Vision 2030.

CONCLUSION

India-Saudi Arabia relations have evolved significantly, from ancient trade and cultural exchanges to a robust strategic partnership. The two nations are

now aligned in key areas like energy security, defence, technology, and regional cooperation. Despite facing challenges such as geopolitical divergences and labour welfare issues, both countries continue to deepen their ties under the framework of Saudi Arabia's Vision 2030 and India's "Think West" policy. To further strengthen these relations, both nations should focus on diversifying economic cooperation, enhancing defence collaboration, addressing labour issues, and promoting cultural and educational exchanges.

INDIA-SRI LANKA FRIENDSHIP: A PARTNERSHIP FOR PROGRESS



WHY IN THE NEWS?

Prime Minister Narendra Modi was recently awarded the 'Sri Lanka Mitra Vibhushana', the highest civilian honour of Sri Lanka, by President Anura Kumar Dissanayake. The award was presented during PM Modi's state visit to Sri Lanka, which took place at

the invitation of President Dissanayake. The visit was themed "Friendship of Centuries – Commitment to a Prosperous Future", highlighting the long-standing and deep-rooted ties between the two neighbouring nations. In a social media post, Prime Minister Modi dedicated the honour to the 1.4 billion citizens of India and to the enduring friendship between India and Sri Lanka. According to MyGov India, this is the Prime Minister's 22nd international honour, further emphasizing his global recognition and the significance of India's role in regional diplomacy.



INDIA AND SRI LANKA COOPERATION IN RECENT YEARS

Area	Highlights
Political Ties	High-level visits (PM Modi, EAM, President Dissanayake) Joint declarations, MoUs, vision on connectivity and prosperity
Economic & Trade	Bilateral trade: USD 5.54 bn (2023–24) Indian FDI: USD 2.25 bn ETCA talks resumed (2023)
Development Aid	USD 7+ bn total aid (credit + grant) 60,000 houses, Jaffna Cultural Centre, ambulance service Digital ID project support
Crisis Support	USD 4 bn during 2022 economic crisis Fuel, food, medicine, currency swap, ACU payment deferment
Connectivity	Ferry: Nagapattinam–Kankesanthurai (Oct 2023) Chennai–Jaffna flights UPI payments launch (Feb 2024) Land/pipeline/power grid planned

Defence & Security	Exercises: SLINEX, Mitra Shakti MRCC setup, Dornier aircraft deployment Training: 1200 slots/year
Cultural Ties	Restoration of Buddhist sites Launch of Jataka Tales in Sinhala Kushinagar–Colombo direct flight for pilgrims
Education & Training	710 scholarships, 402 ITEC slots/year Civil Service Training (NCGG) Hindi language chairs, teacher exchange
Tourism & Diaspora	India = top source of tourists (20%+) Engagement with Indian-origin Tamils and PIOs

SIGNIFICANCE OF SRI LANKA FOR INDIA

1. **Strategic Location:** Sri Lanka sits near major sea lanes in the Indian Ocean, crucial for India's maritime security and trade routes.
2. **Neighbourhood First Policy:** As India's closest maritime neighbour, Sri Lanka plays a central role in India's regional outreach and foreign policy priorities.
3. **Cultural & Historical Bonds:** Deep-rooted civilizational links through Buddhism, language, and heritage strengthen people-to-people and cultural ties.
4. **Economic & Trade Partner:** A key trade and investment partner; also vital for India's ambitions of regional economic integration through projects like ETCA.
5. **Security & Counter-Terrorism Cooperation:** Close collaboration in defence, intelligence sharing, and maritime security under platforms like the Colombo Security Conclave.
6. **Connectivity Hub:** Central to India's vision of multi-modal connectivity—land, sea, digital, and energy—linking southern India to Southeast Asia.
7. **Influence Balancer in the IOR:** Helps India counterbalance China's growing presence in the Indian Ocean Region and maintain regional stability.

SIGNIFICANCE OF INDIA SRI FOR LANKA

1. **Closest and Time-Tested Partner:** India is Sri Lanka's nearest and most dependable neighbour, with ties rooted in history, culture, and civilizational connections.
2. **Economic Lifeline:** India is one of Sri Lanka's largest trade partners and top source of Foreign Direct Investment (FDI), vital for economic stability.
3. **Development Assistance:** India has extended over USD 7 billion in assistance, including housing, healthcare, education, transport, and digital infrastructure.
4. **Crisis Support Provider:** During Sri Lanka's 2022 economic crisis, India was the first responder, providing nearly USD 4 billion in emergency aid and credit.
5. **People-to-People Ties & Tourism:** India is the largest source of tourists and scholarships and is home to a large Sri Lankan diaspora, enhancing people-level connections.
6. **Connectivity & Integration Partner:** Through ferry services, digital payments (UPI), power grid proposals, and port development, India aids Sri Lanka's regional integration.
7. **Security and Regional Stability Partner:** Defence cooperation, counter-terrorism collaboration, and platforms like the Colombo Security Conclave strengthen Sri Lanka's security framework.

AREAS OF DIVERGENCE

1. **Fishermen Issue:** Frequent arrests of Indian fishermen for allegedly trespassing into Sri Lankan waters remains a long-standing irritant.
2. **Ethnic Tamil Issue:** India's consistent support for the rights and reconciliation of Sri Lankan Tamils sometimes leads to sensitivities in Colombo.
3. **Geopolitical Tilt towards China:** Sri Lanka's growing strategic and economic engagement with China (e.g., Hambantota Port lease) raises concerns for India.
4. **Delay in Indian Projects:** Some Indian-funded infrastructure and development projects in Sri Lanka have faced delays due to red tape or political hesitation.
5. **Trade Imbalance & ETCA Hesitancy:** Sri Lanka's concerns over trade imbalance and domestic opposition have delayed the finalization of the Economic & Technology Cooperation Agreement (ETCA).
6. **Security & Sovereignty Sensitivities:** Joint initiatives, especially in ports and energy, sometimes raise sovereignty-related concerns among sections of Sri Lankan society.
7. **Political Instability & Policy Inconsistency:** Changes in leadership in Sri Lanka sometimes result in inconsistent foreign policy and delays in implementing agreed-upon initiatives.

WAYS TO STRENGTHEN BILATERAL TIES

1. **Institutionalize High-Level Dialogues:** Regular summits, ministerial meetings, and strategic dialogues to maintain policy continuity and address concerns promptly.
2. **Speed Up Infrastructure Projects:** Fast-track implementation of Indian-funded development and connectivity projects with clear timelines and joint monitoring mechanisms.
3. **Resolve the Fishermen Issue Amicably:** Establish joint patrolling early warning systems and promote deep-sea fishing alternatives to reduce conflict.

4. **Enhance Economic Integration:** Finalize ETCA with mutual safeguards, expand trade, and promote cross-investment in priority sectors like tourism, IT, energy, and pharma.
5. **Boost People-to-People Exchanges:** Increase scholarships, cultural exchanges, direct air links, and religious tourism, especially around Buddhist and Hindu circuits.
6. **Strengthen Defence & Security Cooperation:** Continue joint exercises (SLINEX, Mitra Shakti), intelligence sharing, and maritime surveillance to address regional threats.
7. **Promote Trilateral and Regional Cooperation:** Work together in forums like BIMSTEC, IORA, Colombo Security Conclave, and Indian Ocean Rim cooperation to build regional stability.

CONCLUSION

India-Sri Lanka relations embody a unique blend of geographic proximity, historical continuity, and strategic partnership. In recent years, both nations have reinvigorated their ties through robust cooperation across political, economic, defence, cultural, and development sectors. India's timely support during Sri Lanka's 2022 economic crisis reaffirmed its role as a reliable first responder and a genuine development partner. However, long-standing challenges such as the fishermen issue, project delays, and geopolitical anxieties need sensitive and sustained engagement. Going forward, institutionalized dialogue, inclusive economic integration, and people-centric diplomacy will be key to transforming this time-tested partnership into a future-oriented alliance. Strengthening bilateral ties is not only in mutual interest but also essential for ensuring peace, stability, and prosperity in the Indian Ocean Region.

**INDIA-UAE RELATIONS:
STRENGTHENING REGIONAL
CONNECTIVITY AND
ECONOMIC COOPERATION**



WHY IN THE NEWS?

His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and

Deputy Prime Minister and Minister of Defence of the UAE undertook his first official visit to India from 8–9 April 2025. He was received in New Delhi by Shri Suresh Gopi, Minister of State for Tourism and Petroleum and Natural Gas, and accorded a ceremonial Guard of Honour. During the visit, Prime Minister Shri Narendra Modi hosted a working lunch at his residence, where the two leaders discussed ways to deepen the India-UAE Comprehensive Strategic Partnership. The Crown Prince also gifted PM Modi a replica of his grandfather Sheikh Rashid's traditional Bisht, symbolizing the enduring generational ties between the two nations.



EVOLUTIONS OF INDIA-UAE BILATERAL RELATIONS

Period	Key Developments	Highlights
Ancient Era to Pre-Independence	Early trade and cultural ties	Maritime trade across the Arabian Sea; movement of Indian merchants to the Gulf region
1947–1971	Post-Independence phase	Limited formal engagement; start of large-scale Indian migration to Trucial States
1971–1980s	Establishment of UAE and formal ties	– India recognized UAE in 1971 – Indian Embassy in Abu Dhabi (1973) – Oil trade and Indian workforce strengthened ties
1990s–Early 2000s	Economic deepening post-liberalization	– Surge in trade & investments – Remittances from the Indian diaspora – UAE becomes a key trade and travel partner
2000s–2014	Strategic diversification	– Expansion in energy and investment cooperation – Beginning of defence/security and counter-terrorism collaboration
2015	Watershed Moment: PM Modi's Visit	– First Indian PM to visit UAE in 34 years – Reset of ties; MoU on CSP (2017)
2015–2022	Comprehensive Strategic Partnership era	– High-level visits on both sides – UAE conferred Order of Zayed (2019) – Defence, space, cyber, fintech, food security cooperation
2022	CEPA signed	– Comprehensive Economic Partnership Agreement – Target: \$100 billion non-oil trade – Tariff reduction, services trade growth

Period	Key Developments	Highlights
2023	Launch of IMEEC and deeper multilateral cooperation	– India-Middle East-Europe Economic Corridor at G20 – Engagement in I2U2 (India-UAE-USA-Israel)
2024–2025	Education, infrastructure & diaspora welfare boost	– IIT Abu Dhabi (2024), IIM-A & IIFT campuses in Dubai (2025) – Bharat Mart & VTC launched – India-UAE Friendship Hospital – CSL-DDW shipbuilding MoU

INDIA UAE COOPERATIONS HORIZONS

- Trade & Economy:** CEPA boosts non-oil trade; initiatives like VTC Bharat Mart enhance logistics
- Energy:** Strong ties in oil, gas, and renewables; collaboration on green hydrogen and strategic reserves.
- Defence & Security:** Joint exercises, counter-terrorism, maritime cooperation, defence manufacturing.
- Education:** IIT, IIM, IIFT campuses in UAE; student exchange, skill development collaborations.
- Diaspora:** 3.5M+ Indians in UAE; key role in economy; welfare via India-UAE Friendship Hospital.
- Healthcare:** Medical tourism, hospital tie-ups, pharma trade, and telemedicine cooperation.
- Infrastructure & Connectivity:** UAE investment in ports, logistics, IMEEC, and shipbuilding MoUs.
- Digital & Tech:** Cooperation in fintech, AI, DPI, cybersecurity, and startup ecosystem via I2U2

SIGNIFICANCE OF UAE FOR INDIA

- Top Trade Partner:** UAE is India's 3rd largest trading partner and 2nd largest export destination. The 2022 CEPA aims to boost non-oil trade to \$100 billion, opening new markets for Indian goods and services.
- Energy Security:** A major supplier of crude oil and LPG to India. UAE has invested in Indian Strategic Petroleum Reserves and is partnering in renewable energy projects like green hydrogen and solar parks.

- Indian Diaspora:** Home to 3.5+ million Indians (the largest overseas Indian population). They contribute to the UAE's economy and send back significant remittances, supporting India's foreign exchange reserves.
- Strategic Location:** UAE's position as a global logistics and shipping hub helps India enhance trade with West Asia, Africa, and Europe. It is a key partner in the India-Middle East-Europe Economic Corridor (IMEEC).
- Defence & Security Cooperation:** Regular joint military exercises (e.g., Desert Eagle), anti-terrorism coordination, cyber security, and maritime cooperation strengthen regional security and strategic trust.
- Investment & Infrastructure:** UAE invests in Indian ports, airports, logistics, and urban infrastructure. Projects like Bharat Mart and Virtual Trade Corridor are enhancing bilateral economic integration.
- Support in Multilateral Platforms:** UAE supports India's positions in UN, FATF, and G20, and is a founding partner in I2U2. Both share a vision of a stable, rules-based global and regional order.
- Education, Health & Innovation:** Hosting IIT, IIM, and IIFT campuses, UAE is emerging as an education hub for the Indian diaspora. It is also collaborating with India in fintech, AI, telemedicine, and digital public infrastructure.

AREAS OF CONCERN BETWEEN INDIA -UAE

- Labour Welfare and Workers' Rights:** Issues related to poor living conditions, wage delays, and legal protection for low-income Indian

workers. Need for stronger bilateral labour agreements and grievance redressal systems.

- 2. Remittance Dependency & Economic Vulnerability:** Economic downturns or policy changes in the UAE can impact remittance flows to India. Sectors like construction, where many Indians are employed, are vulnerable to global shocks.
- 3. Legal and Consular Issues:** Indian nationals often face legal challenges, including arrests, without adequate legal aid. Consular access and timely support in such cases can be inconsistent.
- 4. Regulatory Hurdles in Trade & Investment:** Despite CEPA, non-tariff barriers, customs delays, and regulatory mismatches can hinder trade efficiency. Alignment on standards and digital trade facilitation is still evolving.
- 5. Geopolitical Pressures & Strategic Balancing:** UAE's growing ties with China and Pakistan can be a concern for India's strategic interests. India must balance UAE ties while safeguarding its core regional priorities.
- 6. Climate & Environmental Commitments:** Need for alignment in climate action, especially on energy transition, sustainable development, and green hydrogen collaboration. Fossil-fuel dependency still dominates trade patterns.
- 7. Underutilized Sectors of Cooperation:** Space, cyber-security, startups, and agriculture cooperation is under-leveraged. Greater focus is needed on expanding new-age and futuristic sectors.
- 8. Visa & Mobility Restrictions:** Limited mobility of skilled professionals, entrepreneurs, and students due to restrictive visa policies. Challenges in mutual recognition of qualifications and work permits.

WAY TO FURTHER THE BILATERAL TIES

- 1. Deepen Trade & CEPA Utilization:** Expand the product and service basket under CEPA. Fast-track initiatives like Bharat Mart, Virtual Trade Corridor, and IMEEC for seamless trade logistics.
- 2. Strengthen Labour & Diaspora Welfare:** Enhance bilateral frameworks for labour rights, social security, skill mapping, and welfare schemes. Set up more grievance redressal and legal aid cells for Indian workers in the Gulf.

- 3. Boost Energy and Climate Cooperation:** Joint ventures in green hydrogen, solar, wind, and carbon capture technologies. Collaborate on cleantech investments under I2U2 and COP28 follow-ups.
- 4. Enhance Defence & Security Partnership:** Conduct more joint defence exercises, naval patrols, and cyber-security cooperation. Collaborate on defence manufacturing and maritime domain awareness in the Indian Ocean.
- 5. Expand Education, Health, & Innovation Linkages:** Facilitate smooth functioning of IIT, IIM, and IIFT campuses in UAE. Promote research tie-ups, telemedicine, pharma trade, and digital health collaborations.
- 6. Promote Startups & Digital Economy:** Encourage joint startup funding, DPI (Digital Public Infrastructure) sharing, fintech, and AI partnerships. Set up an India-UAE innovation fund or startup corridor.
- 7. Ease Mobility & Skill Recognition:** Bilateral agreements for eased visa norms, work permits, and skill recognition. Promote professional mobility across healthcare, IT, construction, and academia.
- 8. Strengthen Multilateral Engagement:** Deepen cooperation in G20, I2U2, UN, and AIB. Jointly advocate for inclusive, rules-based global order and climate justice.

CONCLUSION

India-UAE relations have evolved into a robust, Comprehensive Strategic Partnership, marked by deepening cooperation in trade, energy, defence, diaspora welfare, and emerging sectors like education, health tech, fintech, and climate action. The high-level visit of the Crown Prince of Dubai in April 2025 further reaffirmed the shared commitment to elevate ties to newer heights through initiatives like CEPA, IMEEC, Bharat Mart, and overseas campuses of premier Indian institutions. As both nations navigate global uncertainties and a shifting geopolitical landscape, trust, people-to-people linkages, economic complementarity, and shared aspirations for a stable, rules-based order will remain the cornerstone of their relationship. With

sustained political will and visionary cooperation, India and the UAE are well poised to become key pillars of growth, connectivity, and innovation across the Gulf and Indo-Pacific regions.

VICE PRESIDENT'S OFFICIAL VISIT TO INDIA: STRENGTH- ENING BILATERAL TIES



WHY IN THE NEWS?

U.S. Vice President J.D. Vance arrived in New Delhi on April 21, 2025, for an official visit, accompanied by his wife, Usha Chilukuri, their three children, and a high-level delegation of U.S. officials, including Ricky Gill, Senior Director for South and Central Asia at the U.S. National Security Council. Upon arrival, Mr. Vance was accorded an official guard of honour. He is scheduled to meet Prime Minister Narendra Modi and members of the Union Cabinet at a dinner hosted at the Prime Minister's residence. The visit is expected to witness the formal launch of the TRUST (Transforming Relationship Utilising Strategic Technology) partnership, which is a rebranded version of the previous Initiative on Critical and Emerging Technologies (iCET) initiated under the Biden administration. The visit has also drawn political attention, with the Congress questioning whether the Prime Minister will raise concerns about the treatment of Indian citizens abroad, and the farmer organisation AIKS announcing plans to protest the Vice President's presence. The visit is seen as a significant step in strengthening U.S.-India strategic and technological cooperation.



INDIA AND THE US: BILATERAL AREAS OF COOPERATION

- 1. Trade and Economic Relations:** In 2024, bilateral goods trade reached \$129.2 billion, with U.S. exports to India at \$41.8 billion and imports at \$87.4 billion. Both nations aim to increase this trade volume to \$500 billion by 2030, under the "Mission 500" initiative.
- 2. Defence and Security:** The U.S. and India have deepened their Major Defence Partnership, focusing on areas like space, artificial intelligence, and defence industrial collaboration.
- 3. Critical and Emerging Technologies (iCET):** Launched in 2022, the iCET initiative enhances collaboration in fields such as semiconductors, AI, and quantum computing. Notably, the U.S. and India are jointly establishing a semiconductor fabrication plant in India, aimed at bolstering national security and technological capabilities.
- 4. Energy Cooperation:** India is considering eliminating import taxes on U.S. ethane and liquefied petroleum gas (LPG) to strengthen energy ties and reduce its trade surplus.
- 5. Cybersecurity and Digital Infrastructure:** Both countries are collaborating on enhancing cybersecurity measures, including threat information sharing and securing telecommunications networks.
- 6. Space Collaboration:** India and the U.S. have reaffirmed their commitment to joint space exploration and research, building upon existing partnerships between their respective space agencies. Office of Space Commerce
- 7. Health Sector:** The two nations continue to collaborate on health initiatives, focusing on areas like disease surveillance, epidemiology, and research on various health conditions.
- 8. People-to-People Ties:** The Indian American community, numbering over 3.5 million, plays a pivotal role in strengthening bilateral relations. Efforts like India's participation in the U.S. Global Entry Program facilitate easier travel and enhance cultural exchanges.

RECENT DEVELOPMENTS IN THE US POLICIES AND ITS IMPACT ON THE INDO-US RELATIONSHIP

1. **Revival of Trade Talks:** India and the U.S. have resumed comprehensive trade negotiations, targeting \$500 billion in bilateral trade by 2030. India may cut tariffs on over \$23 billion worth of U.S. goods, while the U.S. has paused tariff hikes for 90 days.
2. **High-Level Diplomatic Visits:** U.S. Vice President JD Vance's visit to India (April 2025) signals renewed political engagement. Meetings with PM Modi focus on resolving trade frictions and boosting bilateral cooperation.
3. **Defence Partnership Upgrade:** Both nations are set to sign a 10-year defence framework under the COMPACT initiative, covering military cooperation, technology, and joint exercises.
4. **Strategic Tech & Nuclear Energy Cooperation:** Under the TRUST initiative, both sides are working on AI infrastructure, semiconductor collaboration, and plans to build U.S.-designed nuclear reactors in India.
5. **Space Collaboration Milestones:** A NASA-ISRO partnership aims to send the first Indian astronaut to the ISS via AXIOM. The joint NISAR mission will be launched to track Earth changes using advanced radar.
6. **Energy Trade Boost:** India may remove duties on U.S. ethane and LPG, aligning with efforts to diversify energy imports and reduce its trade surplus with the U.S.
7. **Digital Economy & IPR Concerns:** The U.S. shift towards economic nationalism under Trump raises concerns over global IP regimes like TRIPS, with implications for tech transfer and pharmaceutical collaboration.
8. **People-to-People & Diaspora Role:** The 3.5 million-strong Indian-American community remains a bridge for stronger ties. VP Vance's cultural engagements in India highlight the soft power dimension of the relationship.

INDIA'S COURSE OF ACTION TO TACKLE CHANGES IN THE INDIA-US RELATIONSHIP

1. **Strengthening Defence and Strategic Ties:** India will deepen defence cooperation with the U.S., focusing on joint exercises, technology sharing, and a strategic defence partnership under the COMPACT initiative.
2. **Expanding Trade Partnerships:** India will address trade frictions through negotiations and seek diversification by strengthening ties with other global partners to offset potential disruptions.
3. **Advancing Energy and Renewable Cooperation:** India will continue collaborating with the U.S. on clean energy and nuclear technologies, aligning its policies with U.S. standards for investment in renewable energy and natural gas.
4. **Driving Innovation and Tech Collaboration:** India will boost its digital economy by working with the U.S. on AI, data privacy, and space technologies, and attract U.S. investments in emerging sectors like biotech and electric vehicles.
5. **Enhancing Regional Engagement:** India will intensify its role in the Indo-Pacific alongside the U.S. and deepen cooperation in the Quad to counter China's influence and promote regional security.
6. **Leveraging People-to-People Ties:** India will harness the Indian-American diaspora and expand educational and cultural exchanges to strengthen bilateral ties.
7. **Collaborating on Climate Change:** India will continue climate cooperation with the U.S. on clean energy, carbon reduction, and technology sharing, in line with the Paris Agreement.
8. **Balancing Geopolitical Relations:** India will carefully navigate its relations with both the U.S. and China, ensuring its global diplomatic and economic interests remain aligned while managing regional challenges.

CONCLUSION

The India-U.S. relationship is undergoing a dynamic phase of expansion, with strengthened cooperation in defence, trade, technology, energy, and regional security. Recent policy shifts in the U.S., especially with the launch of the TRUST initiative, signal a

renewed commitment to deepening ties in strategic sectors. India's proactive response includes enhancing defence collaboration, addressing trade frictions, advancing energy cooperation, and focusing on technological innovation. The growing Indian-American diaspora continues to play a crucial role in bridging cultural and economic gaps, reinforcing the people-to-people connections. As both nations move forward, India's balancing act between its relationship with the U.S. and its regional challenges, particularly with China, will define the future trajectory of their partnership. With both nations committed to fostering strategic, economic, and technological ties, the India-U.S. relationship is poised for long-term success, contributing significantly to global stability and growth.

PRELIMS QUESTIONS

1. Consider the following statements regarding the India-Saudi Arabia relationship:

1. Saudi Arabia is one of India's top three crude oil suppliers.
2. The India-Saudi Arabia Strategic Partnership Council was formed in 2019 to enhance bilateral cooperation.
3. Saudi Arabia's Public Investment Fund (PIF) has made significant investments in India's infrastructure and renewable energy sectors.

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

2. With reference to humanitarian aid, consider the following statements:

1. India's humanitarian aid policy is primarily based on the principles of "Neighborhood First" and "South-South Cooperation."
2. Operation Dost was launched by India to provide

humanitarian relief to Türkiye and Syria after a devastating earthquake.

3. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) is responsible for overseeing all global humanitarian aid operations.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

3. Consider the following statements regarding the Armed Forces (Special Powers) Act (AFSPA), 1958:

1. AFSPA can be imposed only with the consent of the state government.
2. The Act empowers armed forces to arrest without a warrant.
3. The declaration of a "disturbed area" under AFSPA is reviewed every six months.

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

4. Consider the following statements about India-Sri Lanka relations:

1. India is Sri Lanka's largest source of Foreign Direct Investment (FDI).
2. The ferry service between Nagapattinam and Kankesanthurai was launched in 2023.
3. India and Sri Lanka are members of the Colombo Security Conclave.

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

5. With reference to India-UAE relations, consider the following statements:

1. The India-UAE Comprehensive Economic Partnership Agreement (CEPA) was signed in 2022.
2. The UAE is India's largest source of crude oil.
3. The India-Middle East-Europe Economic Corridor (IMEEC) was launched at the BRICS Summit 2023.
4. The first overseas campus of the Indian Institute of Technology was established in Abu Dhabi.

Which of the statements given above is/are correct?

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

6. With reference to the Malabar Naval Exercise, which of the following statements is/are correct?

1. It began as a bilateral exercise between India and the United States in 1992.
2. Japan and Australia have been permanent members of the exercise since its inception.

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

ANSWER

1. B	2. B	3. B	4. D	5. A	6. A
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MAINS QUESTIONS

1. India and New Zealand have strong historical and cultural ties, but economic relations remain underdeveloped. Discuss the key challenges in India-New Zealand trade relations and suggest measures to enhance bilateral trade.

(250 words, 15 marks)

2. Discuss India's approach to humanitarian aid and compare it with that of Western powers.

(250 words, 15marks)

3. Discuss the evolution of India-Saudi Arabia relations and suggest measures to strengthen bilateral ties in the areas of trade, defence, and cultural exchange.

(250 words, 15marks)

4. "India-Sri Lanka relations are anchored in shared history and geography but tested by emerging geopolitical realities." Critically examine this statement in the context of recent developments.

(250 words, 15marks)

5. India-UAE relations have matured into a Comprehensive Strategic Partnership with expanding horizons in trade, defence, energy, and education. Discuss the significance of recent developments in bilateral ties and suggest ways to further strengthen the relationship.

(250 words, 15marks)

6. Discuss the significance of the TRUST initiative in strengthening the strategic relationship between India and the U.S., with a focus on technology and defence cooperation.

(250 words, 15 marks)



FINANCE BILL VS. MONEY BILL VS. ORDINARY BILL



WHY IN THE NEWS?

Senior Congress leader Shashi Tharoor has criticised the Finance Bill, calling it a “classic case of patchwork solutions” amid India’s serious structural economic challenges. Speaking in Lok Sabha, he pointed out that growth targets were being revised downward, with even 6% growth becoming difficult to achieve. Tharoor also highlighted the fiscal disparity between the Centre and southern states, arguing that despite their significant contribution to the economy, they were not receiving a fair share of funds. Additionally, he flagged concerns over sectoral imbalances, noting that while agriculture’s workforce has grown, manufacturing has shrunk to 15% of GDP—the lowest this century. He also pointed to stagnating exports and rising financial strain even on higher-income earners.



WHAT IS A FINANCE BILL?

The Finance Bill is a legislative proposal introduced annually in the Indian Parliament to implement the government’s financial policies, including taxation, expenditures, and borrowings for the upcoming

fiscal year. Once approved, it becomes the Finance Act, giving legal effect to these financial proposals.

KEY HIGHLIGHTS FROM THE UNION BUDGET 2025-2026:

- 1. Income Tax Reforms:** New Tax Regime Adjustments: The exemption threshold has been raised, with income up to ₹12 lakh now tax-free, up from the previous ₹7 lakh limit. Tax slabs under the old regime remain unchanged. Wikipedia
- 2. Support for Non-Governmental Organizations (NGOs):** Under Section 12A, the validity period for tax exemptions has been extended from 5 to 10 years for institutions with an income of ₹5 crore and below in both preceding years.
- 3. International Financial Services Centre (IFSC):** The commencement date for IFSC unit operations eligible for tax exemptions has been extended to March 31, 2030, providing a longer window for businesses to benefit from these incentives.
- 4. Startup Tax Incentives:** The eligibility period for income tax exemptions for startups has been extended. Startups incorporated up to April 1, 2030, can avail of tax benefits for three consecutive years within their first ten years of operation.
- 5. Customs Duty Adjustments:** Reductions in customs duties have been implemented for specific items to encourage imports and support domestic industries.
- 6. Tax Deducted at Source (TDS) and Tax Collected at Source (TCS):** TDS Limit: The annual threshold for TDS has been increased to ₹6 lakh. TCS Limit: The threshold for remittances

has been raised from ₹7 lakh to ₹10 lakh. Compliance Mechanism Enhancements: The time limit for assessments has been extended from 2 to 4 years. Penalties are structured at 60% for the third year and 70% for the fourth year, encouraging timely compliance.

CONSTITUTIONAL PROVISIONS

- Article 110:** Money Bill Definition: The Finance Bill is a Money Bill, as it deals with taxation, borrowing, and expenditures from the Consolidated Fund of India. Money Bills can only be introduced in the Lok Sabha and require the Rajya Sabha's recommendations, but the Upper House cannot reject them.
- Article 112:** Annual Financial Statement (Union Budget): The Union Budget, which includes the Finance Bill, is presented in this article. It outlines the government's estimated revenues and expenditures for the upcoming financial year.
- Article 117:** Financial Bills: While all Money Bills are Financial Bills, not all Financial Bills are Money Bills. Financial Bills must be introduced in Lok Sabha first, but they require approval from both Houses of Parliament.
- Article 265:** No Tax Without Authority of Law: No tax can be levied or collected unless it is authorised by law, making the passage of the Finance Bill crucial for implementing tax policies.

COMPONENTS OF FINANCE BILL

- Taxation Provisions:** Modification of existing tax rates (e.g., changes in Income Tax slabs, GST, Customs, and Excise Duties). Continuation of existing taxes beyond their approved period
- Government Borrowings:** Provisions related to government loans, bonds, and other borrowing mechanisms. Authorisation for raising funds to meet budgetary deficits.
- Revenue and Expenditure Policies:** Allocation of government revenues for various schemes and projects. Guidelines on Public Expenditure Management
- Tax Exemptions and Incentives:** Special relief measures for specific sectors, businesses, or individuals. Exemptions for startups, industries, and NGOs (as seen in recent Finance Bills).
- Customs and Excise Duties Adjustments:** Import/export duty modifications to boost or restrict trade in specific sectors. Tariff changes to protect domestic industries.
- Compliance and Penalty Mechanisms:** Extension or revision of assessment timelines for tax compliance. Introduction of new penalties for tax evasion or delayed payments.
- Amendments to Existing Financial Laws:** Modifications to laws like the Income Tax Act, GST Act, and Customs Act. Legal provisions to streamline taxation and revenue collection.

COMPARISON TABLE: FINANCE BILL VS. MONEY BILL VS. ORDINARY BILL

Feature	Finance Bill	Money Bill	Ordinary Bill
Definition	A bill that contains financial provisions like taxation, fund allocation, and amendments to tax laws.	A bill that only deals with taxation, government borrowing, and expenditure from the Consolidated Fund of India.	A bill that deals with general legislative matters, not necessarily financial.
Constitutional Basis	Article 117	Article 110	No specific article, covered under the general legislative process.
Scope	Covers financial proposals, tax amendments, and fund allocations.	Strictly deals with government revenue, expenditure, taxation, and borrowing.	Covers all other legislative matters such as education, health, infrastructure, etc.

Feature	Finance Bill	Money Bill	Ordinary Bill
Introduction	Only in Lok Sabha	Only in Lok Sabha	Can be introduced in either Lok Sabha or Rajya Sabha
Rajya Sabha's Role	Can recommend amendments, but Lok Sabha has the final say.	Can suggest changes, but Lok Sabha can reject them.	Can amend, reject, or approve the bill.
Approval Process	Must be passed by both Houses of Parliament.	Must be passed by Lok Sabha and sent to Rajya Sabha, but Rajya Sabha cannot reject it.	Must be passed by both Houses of Parliament.
President's Approval	Required	Required	Required
Example	Union Budget Finance Bill, which includes tax slab changes, GST amendments, etc.	A bill imposing a new tax or increasing government borrowing.	Bills related to education, health, employment, infrastructure, etc.

IMPORTANCE OF FINANCE BILL

- 1. Legal Framework for Taxation:** Serves as the legal foundation for the Union Budget, detailing proposed tax changes.
- 2. Authority for Revenue Collection:** Grants the government the legal power to collect taxes, including income tax, customs duties, and excise duties.
- 3. Amendments to Tax Laws:** Enables modifications to existing tax laws, ensuring they align with government financial policies.
- 4. Covers Financial Matters:** Addresses key financial aspects such as revenue, expenditure, borrowings, and fiscal policies.
- 5. Implementation of Budget Proposals:** Acts as the mechanism for executing the government's financial proposals.
- 6. Parliamentary Approval:** Requires approval from Parliament, ensuring transparency and legal validation of financial changes.
- 7. Becomes Finance Act:** Once passed, it transforms into the Finance Act, legally enforcing tax and financial provisions.

CONCLUSION

The Finance Bill plays a crucial role in shaping India's financial landscape by outlining taxation policies, revenue collection mechanisms, and

expenditure plans. As a Money Bill, it ensures that the government's financial proposals are legally enforced while maintaining fiscal discipline. With constitutional backing under Articles 110, 112, 117, and 265, it serves as the backbone of economic governance, supporting taxation reforms, government borrowings, and financial incentives.

**INDIA'S BIO-ECONOMY
SOARS 16-FOLD IN A DE-
CADE, REACHING \$165.7
BILLION IN 2024**



WHY IN THE NEWS?

India's bio-economy has achieved a remarkable 16-fold growth over the past decade, surging from \$10 billion in 2014 to \$165.7 billion in 2024. This milestone was announced by Union Minister Dr Jitendra Singh during the release of the India Bioeconomy Report 2025 (IBER 2025) at the BIRAC Foundation Day ceremony. The exponential growth reflects India's strategic focus on biotechnology as a key driver of economic expansion, with the sector now contributing 4.25% to India's GDP, exceeding initial expectations. India had initially set a bio-economy target of \$150 billion by 2025, but the sector has already surpassed it a year ahead of schedule. With a Compound Annual Growth Rate (CAGR) of 17.9% over the past four years, India is reinforcing its potential as a global biotech leader.



WHAT IS BIO-ECONOMY?

Bio-economy refers to an economic system that utilizes biological resources, biotechnology, and bio-based innovations to create sustainable solutions for industries such as healthcare, agriculture, energy, and manufacturing. It focuses on using renewable biological materials to replace fossil-based resources, enhancing environmental sustainability and economic growth.

KEY COMPONENTS OF BIO-ECONOMY:

1. **Biotechnology:** Used in healthcare (vaccines, bio-pharmaceuticals), agriculture (genetically modified crops, bio-fertilizers), and industry (biofuels, biodegradable plastics).
2. **Bio-Resources:** Renewable biological materials like plants, microorganisms, and bio-waste used in food, fuel, and chemicals.
3. **Sustainable Development:** Reducing reliance on non-renewable resources and promoting circular economy practices.

COMPONENT OF BIO-ECONOMY

1. **Biotechnology & Biopharma:** Involves the development of vaccines, biosimilars, gene therapies, and advanced bio-manufacturing techniques to improve healthcare and disease management.
2. **Bio-Agri & Agri-Tech:** Focuses on genetically modified (GM) crops, bio-fertilizers, bio-pesticides, and precision farming to enhance agricultural productivity and sustainability.
3. **Bio-Industrial & Bio-Manufacturing:** Includes the production of biofuels, biodegradable plastics, bio-chemicals, and sustainable packaging to reduce environmental impact and promote green alternatives.

4. **Bio-Energy & Bio-Fuels:** Covers the development of renewable energy sources like ethanol, biodiesel, biogas, and waste-to-energy technologies to reduce dependence on fossil fuels.
5. **Bio-IT & Digital Bio-Economy:** Integrates AI, Big Data, and bioinformatics in genomics, drug discovery, and precision medicine to accelerate scientific advancements.
6. **Marine & Environmental Bio-Economy:** Utilizes marine bio-resources for pharmaceuticals, cosmetics, and food while also focusing on bio-remediation and climate change mitigation.
7. **Bio-Waste Management:** Converts organic waste into bio-energy, bio-compost, and eco-friendly materials, contributing to a circular economy and sustainable waste disposal.
8. **Bio-Economy Policy & Investments:** Includes government policies, funding programs, and global collaborations to promote biotech startups, research, and innovation in the sector.

GROWTH OF BIO-ECONOMY IN INDIA

India's bio-economy has witnessed remarkable growth over the past decade, expanding from \$10 billion in 2014 to \$165.7 billion in 2024. This rapid rise represents a 16-fold increase and a Compound Annual Growth Rate (CAGR) of 17.9%. The sector now contributes 4.25% to India's GDP, highlighting its role as a key pillar of economic development. Key factors driving this growth include advancements in biopharma, agriculture, bio-manufacturing, bio-energy, and digital biotech innovations. India has also established itself as a global hub for vaccine production, biosimilars, and biotech startups, reinforcing its leadership in the biotechnology sector.

GOVT INITIATIVES TO PROMOTE BIO-ECONOMY

1. **Biotechnology Industry Research Assistance Council (BIRAC):** A key government initiative that supports biotech startups, provides funding, and promotes innovation in biotechnology.
2. **National Biotechnology Development Strategy (NBDS):** A long-term strategic framework aimed at making India a global leader in biotechnology

by strengthening research and industry collaboration.

3. **Atal Innovation Mission (AIM):** Encourages entrepreneurship and innovation in biotechnology through funding, incubation centers, and startup support.
4. **Biopharma Mission:** Focuses on developing next-generation biopharmaceuticals, strengthening India's position in global biopharma markets.
5. **Production Linked Incentive (PLI) Scheme for Biotech Sector:** Offers financial incentives to boost domestic biotech manufacturing and reduce dependency on imports.
6. **Bio-Saarathi Initiative:** A newly launched global mentorship program designed to support biotech startups through structured guidance and networking.
7. **Waste-to-Wealth Mission:** Encourages bio-waste management, bio-energy production, and circular economy practices to promote sustainability.
8. **Agri-Biotech Initiatives:** Supports research and development in genetically modified crops, bio-fertilizers, precision agriculture, and climate-resilient farming techniques.

IMPORTANCE OF BIO-ECONOMY

1. **Boosts Economic Growth and Employment:** The bio-economy plays a crucial role in GDP growth, providing millions of jobs in biotech research, bio-manufacturing, and healthcare.
2. **Enhances Food Security and Agricultural Sustainability:** Biotechnology helps improve crop yields, develop climate-resistant crops, and promote sustainable farming practices.
3. **Revolutionizes Healthcare and Medicine:** The sector enables the development of vaccines, biosimilars, personalized medicine, and cutting-edge healthcare solutions.
4. **Supports Environmental Sustainability:** Bio-based innovations reduce dependence on fossil fuels, encourage the use of renewable

energy, and promote bio-waste management.

5. **Strengthens India's Global Leadership in Biotechnology:** The rapid expansion of India's bio-economy positions the country as a key player in global biotech innovation and trade.

CHALLENGES TO HARNESS THE POTENTIAL OF BIO-ECONOMY IN INDIA

1. **Regulatory Barriers and Policy Gaps:** The complex and lengthy approval process for biotech innovations slows down research and commercialization.
2. **Limited Funding and Private Sector Investment:** While government support is increasing, private-sector investments in biotech R&D are still not at par with global standards.
3. **Inadequate Infrastructure and Skilled Workforce:** There is a need for more biotech research labs, world-class manufacturing facilities, and trained professionals to support industry growth.
4. **Public Awareness and Acceptance Issues:** Misinformation and resistance to genetically modified organisms (GMOs) and bio-based products hinder widespread adoption.
5. **Intellectual Property (IP) and Patent Challenges:** Ensuring strong patent protection for biotech innovations remains a challenge, affecting global competitiveness.
6. **Limited Market Access and Global Competition:** Indian biotech companies need better access to international markets and stronger global trade strategies to compete with developed nations.

WAY FORWARD

1. **Simplify Regulatory Frameworks:** Streamlining approval processes will encourage faster biotech innovation and commercialization.
2. **Increase Investment in Biotech R&D:** Expanding funding opportunities for startups and research institutions will drive new discoveries and advancements.
3. **Develop World-Class Biotech Infrastructure:** Establishing more biotech parks, incubation centers, and advanced research labs will create a strong ecosystem for growth.

- 4. Enhance Skill Development and Education:** Training professionals in bio-manufacturing, digital biotechnology, and bioinformatics will help meet industry demands.
- 5. Promote Public Awareness and Acceptance:** Educating people about the benefits of biotech innovations will encourage their adoption in agriculture, healthcare, and industry.
- 6. Strengthen International Collaborations:** Partnering with global biotech leaders will help India access cutting-edge research, expand its market reach, and enhance innovation.
- 7. Focus on Sustainability and Circular Bio-Economy:** Encouraging bio-waste management, renewable energy, and eco-friendly materials will ensure long-term environmental benefits.

CONCLUSION

India's bio-economy has experienced unprecedented growth, surpassing its 2025 target ahead of time. With strong government support, rising investments, and ongoing innovation, India is poised to become a global biotech powerhouse, driving economic growth, sustainability, and technological advancements. Additionally, fostering a robust biotech startup ecosystem, enhancing public-private partnerships, and leveraging digital transformation will further accelerate India's leadership in the bio-economy sector, ensuring long-term growth and global competitiveness.

**REVITALIZING INDIA'S
FISHERIES: PATHWAYS
TO GROWTH AND
SUSTAINABILITY**



WHY IN THE NEWS?

Punjab produces over 1.81 lakh tons of fish annually from natural waters, private, and Panchayati ponds, with more than 43,900 acres dedicated to fish farming in the state. The State Fisheries Department has disbursed more than 30 crore rupees in subsidies to 618 families over the past four years under the centrally sponsored Pradhan Mantri Matsya Sampada Yojana to promote the Blue Revolution.

During a seminar organized by the department to educate fish farmers about new technologies, best practices, and innovative methods of fish farming, State Minister of Animal Husbandry, Dairy Development, and Fisheries Gurmeet Singh Khudian highlighted that approximately 14 crore quality fish seed is produced annually at 16 government fish seed farms and distributed to farmers at subsidized rates. Additionally, Punjab is making progress in shrimp farming by utilizing thousands of acres of land that were previously unsuitable for agriculture due to waterlogging and salinity.



WHAT IS PM -MSY?

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship initiative launched by the Government of India to promote sustainable fisheries and aquaculture development in the country. It was launched in 2020 under the Ministry of Fisheries, Animal Husbandry, and Dairying, with the goal of boosting the fisheries sector and improving the livelihoods of fishers, fish farmers, and workers.

KEY OBJECTIVES OF PMMSY:

- 1. Infrastructure Development:** It focuses on developing modern infrastructure for fisheries, such as fish landing centres, cold storage facilities, and processing units.
- 2. Post-Harvest Management:** The scheme aims to improve the value chain from harvesting to processing and marketing, including cold

chain facilities, which ensure better quality and reduced wastage.

- 3. Technological Advancement:** Encourages the use of modern and sustainable technologies in fishing, aquaculture, and post-harvest management.

FISHERY SECTOR IN INDIA

Category	Data
Total Fish Production	Over 13 million metric tons annually (including inland and marine)
Marine Fish Production	3.8 million metric tons (approx.)
Inland Fish Production	9.4 million metric tons (approx.)
Fish Export Value	USD 8.5 billion (approx.) in 2021
Top Fish Exporting States	West Bengal, Andhra Pradesh, Kerala, Tamil Nadu, Gujarat
Total Area under Aquaculture	2.4 million hectares (approx.)
Fish Farming Area (Ponds and Tanks)	1.4 million hectares (approx.)
Number of Fishers/Fish Farmers	14 million people engaged in fishing and aquaculture
Aquaculture Production Growth Rate	7-8% per year
Contribution to GDP	Approx. 1.1% of the Indian GDP from the fisheries sector
Fish Consumption per Capita	10.2 kg per capita per year (approx.)
Fish Seed Production	Over 50 billion seeds annually (for aquaculture)
Marine Fish Export Share	Over 70% of India's fish exports are marine products
Top Fish Species Farmed	Carps, Catla, Rohu, Tilapia, Pangasius, Shrimp (Vanna-mei)
Fisheries' Share in Agriculture GDP	Approx. 5.23% (of the total agriculture GDP)
Fisheries Infrastructure Investment	Rs 20,050 crore (PMMSY investment over 5 years, 2020-2025)
Number of Fishing Harbors	150+ fishing harbours across India
Fisheries Startups	100+ start-ups promoted under PMMSY
Total Coastal Area	7,500 km of coastline, contributing significantly to marine fisheries

- 4. Fishermen Welfare:** The scheme is designed to uplift the living standards of fishermen and fish farmers by providing them with necessary support, training, and subsidies.

- 5. Sustainability:** Focuses on environmentally sustainable practices and supports the development of climate-resilient coastal villages.

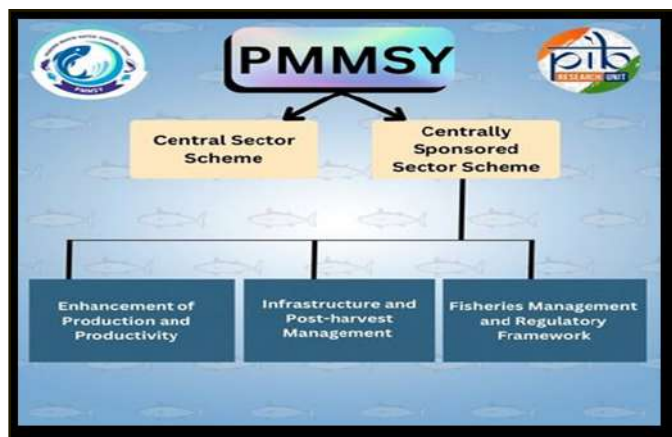
OBJECTIVES AND COMPONENTS OF PM-MSY

- 1. Increase Fish Production:** Boost both marine and inland fish production to ensure a steady supply of nutritious food and enhance food security.
- 2. Sustainability and Growth:** Promote environmentally sustainable fishing practices, minimize over-exploitation of marine resources, and develop aquaculture in a sustainable manner.
- 3. Infrastructure Development:** Build and upgrade infrastructure like fish landing centers, cold storage, and processing units to support the value chain.
- 4. Technological Innovation:** Encourage the use of modern technologies in fishing, fish farming, and post-harvest management to improve efficiency and reduce wastage.

COMPONENTS OF PMMSY

PMMSY has two major components:

1. **Central Sector Scheme (CS):** Fully funded and implemented by the central government. Focuses on the development of infrastructure, technology, and capacity building.
2. **Centrally Sponsored Scheme (CSS):** Partially funded by the central government, with the balance funding provided by the state governments. Implemented by state governments and their agencies.



WHAT IS AN ISSUE IN INDIA'S FISHERY SECTOR?

1. **Overfishing and unsustainable practices:** Depletion of marine fish stocks due to overfishing and illegal fishing methods.
2. **Climate change:** Rising ocean temperatures, acidification, and extreme weather events impacting fish habitats and breeding.
3. **Poor infrastructure:** Lack of modern fish landing centres, cold storage, and transport facilities leading to post-harvest losses.
4. **Water pollution:** Industrial discharge, agricultural runoff, and plastic pollution degrade water quality and harm fish.
5. **Outdated aquaculture:** Limited access to modern technologies, quality seeds, and efficient farming methods in rural areas.
6. **Limited research:** Insufficient research on sustainable practices, breeding techniques, and fish health management.
7. **Financial constraints:** Inadequate access to credit, insurance, and financial literacy for small-scale fishers.
8. **Livelihood issues:** Low income, poor living conditions, gender inequality, and youth migration from fishing communities.

WAY TO MAKE THE FISHERY SECTOR MORE PRODUCTIVE, EFFICIENT AND SUSTAINABLE

1. **Promote Sustainable Fishing Practices:** Implement and enforce sustainable fishing regulations, including setting fishing quotas, restricting illegal fishing, and using eco-friendly gear to prevent overfishing and protect marine ecosystems.
2. **Modernize Aquaculture Practices:** Invest in modern aquaculture technologies such as recirculating aquaculture systems (RAS), better breeding techniques, and efficient feed management to increase production and reduce environmental impact.
3. **Improve Infrastructure:** Develop and upgrade cold storage, fish landing centers, and processing facilities to reduce post-harvest losses, improve the shelf life of fish, and facilitate efficient supply chains.
4. **Enhance Water Quality Management:** Implement better management of water bodies and control pollution through improved waste disposal, agricultural runoff management, and water treatment systems for aquaculture farms.
5. **Adopt Climate-Resilient Practices:** Develop climate-resilient aquaculture and fisheries practices, including using saline or brackish water for aquaculture and improving disaster preparedness in coastal and fishing communities.
6. **Increase Research and Development:** Focus on R&D for breeding better fish species, improving disease management, and creating innovative farming techniques to boost productivity while reducing environmental degradation.
7. **Strengthen Financial Access:** Provide better access to credit, insurance, and subsidies for fishers and farmers, particularly small-scale producers, to improve their financial stability and enable investment in modern technologies.

8. Capacity Building and Skill Development:

Organize training programs to enhance the skills of fishers, farmers, and stakeholders in adopting best practices, new technologies, and sustainable farming methods to improve efficiency and profitability.

CONCLUSION

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a transformative initiative aimed at revolutionizing India's fisheries sector. By focusing on sustainable practices, infrastructure development, technological innovation, and the welfare of fishermen, PMMSY provides a comprehensive framework for addressing the sector's challenges. With an emphasis on increasing fish production, improving the value chain, and ensuring climate resilience, the scheme strives to enhance the livelihoods of millions of fishers and farmers across the country. However, India's fisheries sector still faces significant hurdles, including overfishing, climate change, poor infrastructure, and financial constraints.

**FROM FARM TO RETAIL:
MAKE IN INDIA'S PUSH
FOR FOOD PROCESSING
EXCELLENCE**



WHY IN THE NEWS?

India's food processing industry has undergone rapid transformation, driven by its vast agricultural base, rising domestic demand, and supportive government policies. India is poised to emerge as a global leader in the food processing sector, with an impressive growth trajectory. The agriculture sector forms the backbone of India's food processing industry, India being the largest producer of fruits, vegetables, millet, tea, and food grains, as well as milk and livestock globally. The food processing sector is a priority under the Make in India initiative, with the Ministry of Food Processing Industries implementing schemes to attract investment and develop infrastructure. Mega Food Parks with essential utilities and common processing facilities are being established in agriculturally rich areas,

offering a plug-and-play model for entrepreneurs. Investment in these parks is recognized under the Harmonized List of Infrastructure Sub-sectors (HLIS), enabling easier access to infrastructure lending.



GOVT SCHEME FOR PROMOTIONS OF THE FOOD INDUSTRY

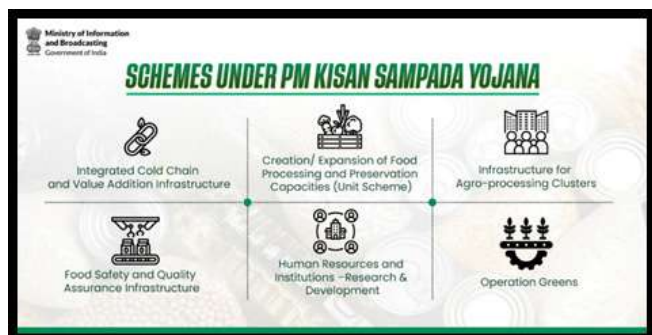
1. PM Kisan Sampada Yojana (PMKSY):

The umbrella Central sector scheme, SAMPADA Scheme for Agro-marine processing and Development of Agro-processing Clusters was approved in May 2017, with a total allocation of Rs.6000 crore for the implementation period. The continuation of the Central Sector Scheme Pradhan Mantri Kisan SAMPADA Yojana (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) with an allocation of Rs. 4600 Crore has been further approved until March 31, 2026. As of February 28, 2025, MoFPI has sanctioned 1608 projects, including 41 Mega Food Parks, 394 Cold Chain projects, 75 Agro-processing Clusters projects, 536 Food Processing Units, 61 Creation of Backward & Forward Linkages and 44 Operation Greens projects under corresponding component schemes of PMKSY across the country. A total sum of ₹ 6198.76 crore has been disbursed as grants in aid/ subsidy since the inception of component schemes of PMKSY.

The PMKSY scheme aims at the following:

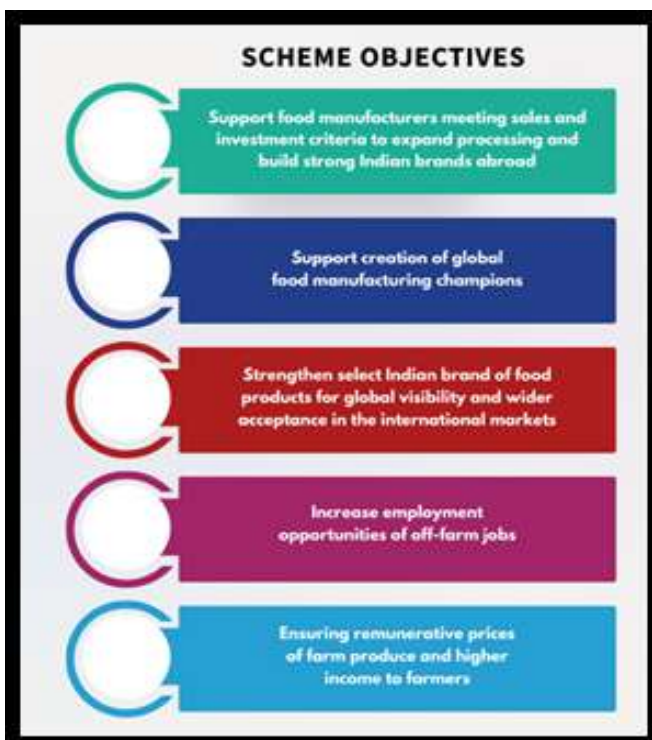
1. A comprehensive package for modern infrastructure and efficient supply chain management, from farm gate to retail outlet
2. Aims to boost the food processing sector in India
3. Helps farmers get better returns and supports a doubling of farmers' income
4. Creates huge employment opportunities, especially in rural areas

5. Reduces wastage of agricultural produce
6. Increases processing levels of food products
7. Enhances exports of processed foods



2. PLISFPI- Production Linked Incentive Scheme for Food Processing Industry

The Central Sector Scheme, Production Linked Incentive Scheme for Food Processing Industry (PLISFPI) was approved by the Union Cabinet in March 2021, with an outlay of ₹10,900 Crore. The Scheme is being implemented over a six-year period from 2021-22 to 2026-27.



THE COMPONENTS OF THE SCHEME ARE –

1. Incentivising manufacturing of four major food product segments viz. Ready to Cook/ Ready to Eat (RTC/RTE) foods, including Millet based products, Processed Fruits & Vegetables, Marine

Products and Mozzarella Cheese (Category I)

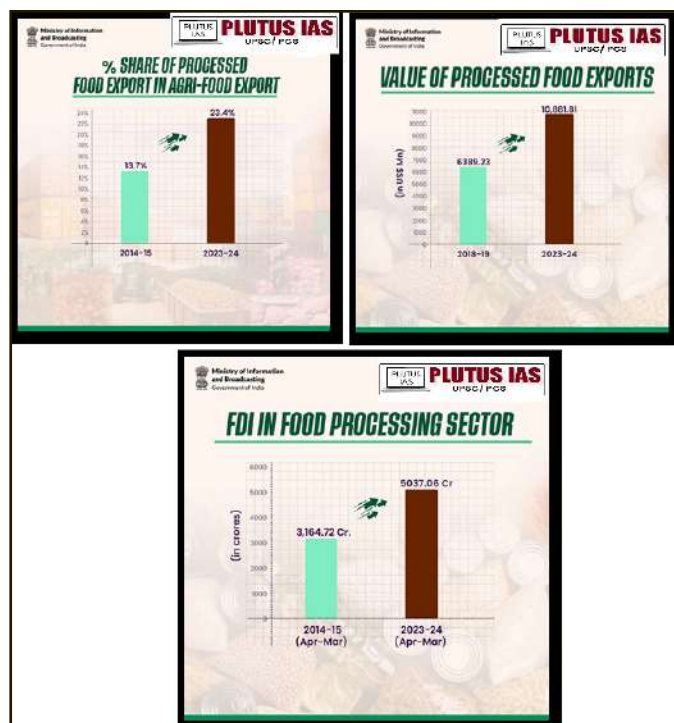
2. Production of Innovative / Organic products of SMEs (Category II)
3. The third component related to support for branding and marketing abroad (Category III) to incentivize the emergence of strong Indian brands for in-store Branding, shelf space renting and marketing.
4. From the savings under PLISFPI, a component for the Production Linked Incentives Scheme for Millet Based Products (PLISMBP) was also carved out from the scheme to encourage the use of Millets in RTC/RTE products and incentivise them under the PLI Scheme to promote its production, value addition and sale.

3. PMFME- Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme

Launched in June 2020, the scheme aims to encourage 'Vocal for Local' in the sector in a total outlay of Rs. 10,000 crore in the period of FY 2020-2025 for this scheme. The scheme has been extended up to FY 2025-26. This is the first ever Government scheme for Micro Food Processing enterprises and is targeted to benefit 2 lakh enterprises through credit-linked subsidy and adopting the approach of One District One Product.



FOOD PROCESSING INDUSTRY IN INDIA



CHALLENGES TO INDIA FARM TO RETAIL FOOD

- 1. Post-Harvest Losses:** Around 30-40% of perishable food is wasted due to inadequate storage, poor handling, and transportation issues.
- 2. Cold Storage & Infrastructure Gaps:** Limited cold chain facilities lead to spoilage of fresh produce, especially fruits, vegetables, and dairy products.
- 3. Middlemen & Price Exploitation:** Farmers rely on intermediaries, leading to low farm-gate prices while consumers pay higher prices.
- 4. Logistics & Transportation Issues:** Poor road networks, lack of refrigerated trucks, and high fuel costs increase food wastage and delivery delays.
- 5. Regulatory Hurdles:** Complex licensing, food safety laws, and taxation policies create barriers for small businesses and retailers.

Aspect	Details
Economic Importance	Significant contributor to GDP, employment, and exports.
Growth Projections	Expected CAGR of 8.8% from 2023 to 2032.
Sectoral Contribution	8.8% of manufacturing GDP and 8.39% of agriculture GDP.
Market Size (2023)	Valued at US\$ 336.4 billion.
Government Initiatives	MOFPI oversees policies, investments, and regulations.
Expansion	Growth in Tier-2 and Tier-3 cities due to rising incomes.
Exports (FY 2023-24)	Agricultural exports reached USD 48.15 billion.
AAGR (2015-2022)	Average Annual Growth Rate of 7.26%.
Global Ranking	6th largest food processing industry in the world.
Contribution to GVA	9% of Gross Value Added (GVA) in the agriculture sector.
Employment Generation	Provides jobs to over 11 million people.
Foreign Direct Investment	USD 11.79 billion received (April 2000 – March 2023).
Food Parks & Infrastructure	23 Mega Food Parks were established for modern processing facilities.
E-commerce & Retail Growth	Online food delivery and retail chains boosting processed food demand.

6. **Inconsistent Quality & Standards:** Lack of standardized grading and packaging affects food quality, making exports and retail operations challenging.
7. **Limited Food Processing Facilities:** Low investment in food processing reduces value addition and leads to higher food wastage.
8. **E-commerce & Retail Challenges:** Issues like last-mile delivery, perishability, and consumer trust make online food retail difficult to scale.

WAY TO STRENGTHENING FARM TO RETAIL CHAIN

1. **Improve Cold Storage & Warehousing:** Invest in cold chains, refrigerated trucks, and modern warehouses to reduce post-harvest losses.
2. **Enhance Logistics & Transportation:** Develop better road networks, rail connectivity, and efficient supply chains to ensure faster delivery of perishable goods.
3. **Promote Farmer Producer Organizations (FPOs):** Encourage FPOs and cooperatives to help farmers sell directly to retailers, reducing dependency on middlemen.
4. **Increase Food Processing Capacity:** Set up more food processing units to add value to raw produce and extend shelf life.
5. **Adopt Digital & Smart Technologies:** Use AI, blockchain, and IoT for real-time tracking, quality control, and better supply chain management.
6. **Encourage Direct-to-Consumer (D2C) & E-commerce Models:** Strengthen farm-to-fork platforms to help farmers sell directly to consumers and retailers.
7. **Streamline Government Policies & Regulations:** Simplify food safety laws, licensing, and tax structures to encourage private investment and innovation.
8. **Expand Financial Support & Credit Access:** Provide subsidies, low-interest loans, and insurance to farmers and small retailers for better infrastructure development.

CONCLUSION

India's food processing industry is undergoing rapid transformation, driven by strong agricultural production, increasing consumer demand, and favourable government policies. With initiatives like PMKSY, PLISFPI, and PMFME, the government is focusing on enhancing infrastructure, boosting investments, and promoting value addition in the sector. Despite challenges such as supply chain inefficiencies, post-harvest losses, and regulatory hurdles, the industry holds immense potential for growth. Strengthening cold storage, logistics, and digital technologies, along with empowering Farmer Producer Organizations (FPOs) and promoting direct-to-consumer models, will be crucial in making the farm-to-retail supply chain more efficient.

**A DECADE OF GROWTH
WITH PM MUDRA YOJANA**



WHY IN THE NEWS?

The Pradhan Mantri MUDRA Yojana (PMMY) was in the news recently as it marked the completion of 10 years since its launch in 2015. Prime Minister Narendra Modi hailed the scheme as a journey of "empowerment and enterprise," highlighting its significant contribution to promoting entrepreneurship across the country. Under the scheme, over 52 crore collateral-free loans amounting to ₹33 lakh crore have been disbursed over the decade. Notably, nearly 70% of the loan beneficiaries are women, and around 50% belong to SC/ST/OBC communities, reflecting the scheme's focus on inclusive growth. The MUDRA Yojana has also played a crucial role in supporting first-time business owners by providing credit of up to ₹10 lakh, and it generated over 1 crore jobs within the first three years of implementation. States like Bihar have emerged as frontrunners, with nearly 6 crore loans sanctioned, demonstrating a robust spirit of grassroots entrepreneurship.

WHAT IS PRADHAN MANTRI MUDRA YOJANA (PMMY)?

Pradhan Mantri MUDRA Yojana (PMMY) is a flagship scheme launched by Prime Minister Shri Narendra Modi on 8th April 2015 with the objective of “Funding the Unfunded.” The scheme aims to provide collateral-free loans of up to ₹10 lakh (now increased to ₹20 lakh) to non-corporate, non-farm micro and small enterprises. These loans are extended by Banks, NBFCs

(Non-Banking Financial Companies), MFIs (Microfinance Institutions) and other financial institutions. The loans fall under three categories based on the stage of the business: Shishu (up to ₹50,000) Kishore (₹50,001 to ₹5 lakh) Tarun (₹5 lakhs to ₹10 lakh) Now expanded with Tarun Plus (₹10 lakh to ₹20 lakh) for eligible repeat borrowers.

Aspect	Details
Vision	To create an inclusive and sustainable entrepreneurial ecosystem by facilitating access to formal financial services for underserved and unserved micro-enterprises, thereby driving self-employment, income generation, and grassroots development.
Mission	To “Fund the Unfunded” by providing collateral-free institutional credit to micro and small enterprises, empowering first-generation entrepreneurs, women, and marginalized communities to become part of the economic mainstream.
Purpose	• Promote financial inclusion through easy access to credit. • Support non-corporate, non-farm micro businesses in manufacturing, trading, and services. • Generate employment and self-employment opportunities. • Bridge the credit gap with loans up to ₹20 lakh via formal financial institutions. • Empower SCs, STs, OBCs, minorities, and women with affordable credit. • Reduce dependence on informal lenders and promote financial discipline.

SALIENT FEATURES OF PMMY

Feature	Details
Launch Date	8th April 2015
Implementing Agency	MUDRA (Micro Units Development and Refinance Agency) under the Government of India
Target Segment	Non-corporate, non-farm micro and small enterprises engaged in manufacturing, trading, processing, and services
Loan Amount	Collateral-free institutional credit up to ₹20 lakh
Loan Categories	– Shishu: Loans up to ₹50,000 – Kishor: Loans from ₹50,001 to ₹5 lakh – Tarun: Loans from ₹5,00,001 to ₹10 lakh – Tarun Plus (introduced in 2024): ₹10 lakh to ₹20 lakh (for eligible previous Tarun borrowers)
Collateral Requirement	No collateral required
Lending Institutions	Scheduled Commercial Banks (SCBs), Regional Rural Banks (RRBs), NBFCs, Micro Finance Institutions (MFIs), and other eligible financial institutions
Credit Guarantee	Coverage under the Credit Guarantee Fund for Micro Units (CGFMU)
Target Beneficiaries	First-time entrepreneurs, women, SC/ST/OBCs, minorities, small and micro-business owners

Feature	Details
Objective	“Funding the Unfunded” – providing affordable credit to underserved entrepreneurs.
Support for Repeat Borrowers	Tarun Plus loans for those with a successful repayment history under the Tarun category
No Processing Fee	No processing fee for Shishu loans
Technology Support	Loan applications and tracking are enabled via digital platforms and online portals.

PM Mudra Yojana

PLUTUS IAS
UPSC / PCS

MUDRA Mission
To create an inclusive, sustainable and value based entrepreneurial culture, in collaboration with our partner institutions in achieving economic success and financial security.

MUDRA Vision
To be an integrated financial and support services provider par excellence, benchmarked with global best practices and standards, for the bottom of the pyramid universe for their comprehensive economic and social development.

MUDRA Purpose
Our basic purpose is to attain development in an inclusive and sustainable manner by supporting and promoting partner institutions and creating an ecosystem of growth for micro enterprises sector.

Decade of Pradhan Mantri Mudra Yojana

Cumulative Outreach to **52 crore** MSE Borrower Accounts with Credit Support of **₹32.61 lakh crore**

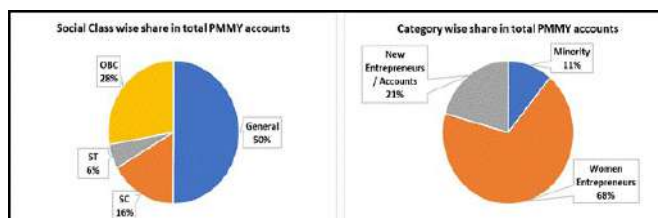
Empowering Women with **68%** Loan Accounts belonging to Women Beneficiaries.

Addressing the Credit Needs of Weaker Sections with **50%** of the Loan Accounts belonging to SC/ST/OBC

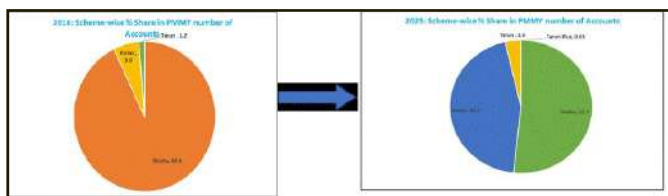
1. MSME Credit Boom A Stronger Business Ecosystem: Driven by Mudra's impact, MSME lending rose from ₹8.51 lakh crore in FY14 to ₹27.25 lakh crore in FY24 and is expected to exceed ₹30 lakh crore in FY25. Its share in total bank credit increased from 15.8% to nearly 20%, enabling greater financial access in small towns and rural areas—boosting grassroots entrepreneurship and India's self-reliant growth.



2. Financial Inclusion: Empowering Women: Women make up 68% of Mudra beneficiaries, highlighting the scheme's role in promoting women-led enterprises. From FY16 to FY25, average loan disbursement per woman grew at a 13% CAGR to ₹62,679, and deposits at 14% to ₹95,269. States with higher women disbursement saw greater job creation, affirming Mudra's impact on women's economic empowerment and participation.



- 3. Financial Inclusion Reaching Marginalised Groups:** PMMY has enabled 50% of SC/ST/OBC entrepreneurs and 11% from minority communities to access formal credit, promoting inclusive economic participation.
- 4. Progressive Lending:** From Shishu to Tarun: Over 52 crore loans have been sanctioned, with Kishor loans rising from 5.9% in FY16 to 44.7% in FY25, reflecting a shift towards scaling up businesses. The Tarun category is also growing, supporting business expansion.



STILL, THE ISSUE PERSISTS

- 1. Rising NPAs:** Non-performing assets under PMMY, especially in higher-ticket categories like Tarun, are increasing, raising concerns over credit quality and borrower repayment capacity.
- 2. Regional Imbalances:** States like Tamil Nadu, Uttar Pradesh, and Karnataka dominate disbursements, while many backward and aspirational districts lag behind in both access and outreach.
- 3. Lack of Monitoring Mechanisms:** There is inadequate tracking of loan utilization, leading to possible diversion of funds and limited evaluation of actual business outcomes.
- 4. Low Transition to Formalisation:** Many micro units remain outside the formal economy, with limited adoption of GST registration, digital payments, or structured accounting.
- 5. Credit Not Always Leading to Business Scaling:** A significant portion of loans are repeat or consumption-based rather than for genuine business expansion or productivity enhancement.
- 6. Dependence on Government Push:** The scheme's momentum is heavily dependent on policy initiatives and public sector banks, with limited

private sector participation in some areas.

WAY FORWARD

- 1. Strengthening Credit Appraisal and Monitoring:** Enhance due diligence and borrower assessment to reduce NPAs, especially in higher-value loan categories like Tarun and Tarun Plus.
- 2. Boosting Awareness and Financial Literacy:** Launch targeted awareness campaigns in underserved regions to ensure eligible entrepreneurs understand loan processes, repayment obligations, and financial planning.
- 3. Improving Regional Balance:** Address geographic disparities by incentivizing lending in low-performing states and strengthening outreach through local institutions like Self-Help Groups and cooperative banks.
- 4. Capacity Building of Entrepreneurs:** Introduce business development support services, mentoring, and training programs, particularly for first-time borrowers and women entrepreneurs.
- 5. Technology-Driven Monitoring:** Leverage fintech and digital platforms to improve loan disbursement, track fund utilization, and ensure real-time monitoring for better accountability.
- 6. Encouraging Formalisation:** Integrate Mudra beneficiaries with GST registration, Udyam portal, and digital payment ecosystems to promote formalisation and scale-up opportunities.
- 7. Impact Assessment and Feedback Mechanism:** Conduct regular, independent impact studies and beneficiary feedback surveys to measure outcomes and fine-tune policy and implementation.

CONCLUSION

In ten years, Pradhan Mantri Mudra Yojana has consistently demonstrated the power of financial inclusion and the strength of grassroots innovation. Before 2014, access to credit often favoured the well-connected, while small entrepreneurs faced hurdles like complex paperwork or were forced to rely on informal finance. Banks handed out reckless

loans to large corporates, while genuine borrowers lost access to credit. MUDRA stepped into this vacuum, offering a cleaner, inclusive alternative that gave everyone an equal chance. With over 52 crore loans sanctioned, the scheme has empowered women, SC/ST/OBC communities, and rural entrepreneurs by expanding access to formal credit. The rise in average loan size, the growing share of MSME credit, and the shift from micro to small enterprises reflect its growing impact. PMMY is not only fuelling self-employment and job creation but also strengthening India's grassroots economy and advancing equitable growth.

NER: HUB OF ECONOMIC GROWTH FOR INDIA



WHY IN THE NEWS?

In a major step to boost global investment and cooperation in India's North Eastern Region (NER), the Ministry of Development of North Eastern Region (MDoNER) organized an Ambassadors' Meet in New Delhi on April 15, 2025. Over 80 countries participated to explore the region's vast economic and strategic potential. Hon'ble Minister Jyotiraditya M. Scindia highlighted the government's vision to transform the NER into a hub of trade, connectivity, and innovation. He emphasized the unique strengths of each of the eight North Eastern states and invited countries to invest in the region, which serves as a vital gateway to Southeast Asia under India's Act East Policy.



BRIEF ABOUT NER INDIA

The NER comprises 8 states – Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim – covering 7.98% of India's area

and 3.76% of its population (Census 2011). Sharing over 5,300 km of international borders with Bhutan, China, Myanmar, and Bangladesh, it holds strategic importance under India's Act East Policy.

SECURITY & PEACE INITIATIVES:

1. 80% drop in insurgency incidents (2014–2020); 99% fall in civilian casualties.
2. 6,000+ militants surrendered since 2014.
3. AFSPA significantly reduced across Assam, Manipur, Nagaland, and Arunachal Pradesh.

KEY PEACE AGREEMENTS:

1. Bodo Accord (2020) – 1,615 cadres surrendered.
2. Bru-Reang Agreement (2020) – 37,000 displaced resettled.
3. Karbi Anglong Accord (2021) – 1,000+ militants joined the mainstream.
4. Assam-Meghalaya Boundary Pact (2022) – resolved 65% of disputes.

DEVELOPMENT PUSH:

1. Budgetary allocation doubled: ₹36,108 crore (2014–15) → ₹76,040 crore (2022–23).
2. PM-DevINE scheme launched with ₹1,500 crores to accelerate regional development.
3. Emphasis on infrastructure, connectivity, investment, and border trade.

STRATEGIC VISION:

The NER is now being positioned as India's gateway to Southeast Asia, focusing on connectivity through the India-Myanmar-Thailand Trilateral Highway and integration with ASEAN markets, aligned with the Act East Policy.



GOVT SCHEME FOR NER DEVELOPMENT

Category	Name	Key Features / Purpose
Schemes	PM-DevINE (2022)	₹1,500 crore scheme for infra, livelihood, entrepreneurship, and social development in NER.
	NESIDS (North East Special Infra Dev Scheme)	100% centrally funded for sectors like water, education, health, and power.
	NERSDS (Road Sector Scheme)	Develops inter-state & intra-state road infrastructure.
	NEIDS, 2017 (Industrial Scheme)	Industrial incentives for GST, transport, and employment – boost private investment.
	NLCPR Scheme (DoNER)	Funds priority infrastructure not covered under other schemes.
	North Eastern Council (NEC) Grants	Regional planning and project funding through the statutory NEC body.
	Digital North East Vision 2022	Focus on e-governance, digital infra, skill development, e-health, etc.
	Mission Organic Value Chain Development (MOVCDNER)	Promotes organic farming and value chain integration.
	Vibrant Villages Programme	Infrastructure and livelihood support in border villages of Arunachal Pradesh and other NE states.
Acts & Accords	North Eastern Council Act, 1971	Established NEC as a statutory body for regional coordination & development.
	AFSPA, 1958 (Partially withdrawn)	Gradually removed from many districts due to improved security.
	Bodo Accord (2020)	Resolved 5-decade-old Bodo issue; 1,615 cadres surrendered.
	Bru-Reang Agreement (2020)	Resettlement of 37,000 displaced Bru-Reang people in Tripura.
	NLFT Agreement (2019)	88 cadres surrendered; aimed at peace in Tripura.
	Karbi Anglong Accord (2021)	1,000+ militants surrendered in Assam's Karbi region.
	Assam-Meghalaya Border Pact (2022)	Resolved 65% of long-pending interstate border disputes.
Policies	Act East Policy (2014)	Enhances connectivity & economic ties with ASEAN; NER as India's gateway to Southeast Asia.
	Tourism Promotion Policy for NER	Eco-tourism, cultural circuits, adventure tourism.
	Startup India & Stand-Up India – NER Focus	Boosts youth entrepreneurship, MSMEs and innovation.

NEI AS A PILLAR OF INDIA ECONOMIC GROWTH

- 1. Strategic Location & Connectivity Potential:** NER shares over 5,300 km of international borders with Bhutan, Bangladesh, Myanmar, and China. Acts as a vital gateway for India's Act East Policy, boosting trade with ASEAN and East Asia.
- 2. Natural Resource Richness:** The region is rich in oil, natural gas, coal, limestone, forest produce, and hydropower potential (over 58,000 MW estimated). Abundant bamboo and medicinal plants offer sustainable economic avenues.
- 3. Organic Farming Hub:** With minimal chemical use, NER is ideal for organic agriculture. Government schemes like MOVCDNER support export-oriented organic value chains.
- 4. Cultural and Ecotourism Potential:** Unique cultural heritage, biodiversity, and scenic landscapes make NER a hub for ecotourism and cultural tourism. Helps generate local employment and promotes sustainable development.
- 5. Connectivity Infrastructure Boom:** Major investments in roads, railways, airways, and digital connectivity are reducing isolation. Projects like the India-Myanmar-Thailand Highway, Kaladan Project, and new railway lines enhance logistics.
- 6. Industrial and Startup Ecosystem Support:** Policies like NEIDS 2017 and Startup India focus on promoting industries and youth entrepreneurship in NER. Sectors like agro-processing, IT, handicrafts, and textiles are being encouraged.
- 7. Improved Security & Peace Initiatives:** Reduction in insurgency and signing of peace accords have created a stable environment for investment. Partial withdrawal of AFSPA signals enhanced law and order.
- 8. Central Government Focus & Funding Support:** Over ₹76,000 crore earmarked (2022–23) from 54 ministries under the 10% GBS allocation rule. Special schemes like PM-DevINE and NESIDS are tailored for region-specific development.

CHALLENGES IN EXPLORING NEI POTENTIAL

- 1. Geographical Isolation:** The narrow Siliguri Corridor (Chicken's Neck) limits easy access, affecting the movement of goods and people.
- 2. Inadequate Infrastructure:** Poor road, rail, power, and digital infrastructure hamper industrialization and economic growth.
- 3. Security Concerns & Insurgency Legacy:** Although improving, remnants of past insurgency and inter-ethnic conflicts still create investment hesitancy.
- 4. Frequent Natural Disasters:** The region is prone to floods, landslides, and earthquakes, which disrupt connectivity and livelihoods.
- 5. Border Disputes & Governance Issues:** Inter-state and international border tensions (e.g., Assam-Meghalaya, Assam-Mizoram) hinder cohesive planning.
- 6. Limited Private Investment:** Perceived risks, high logistics costs, and lack of industrial ecosystem discourage private sector participation.
- 7. Lack of Awareness & Market Access:** Poor branding and limited access to national and global markets for local produce and handicrafts stifle economic opportunities.
- 8. Skill Gaps & Migration:** Despite high literacy, lack of vocational training leads to youth migration in search of jobs, draining local talent.

WAY FORWARD

- 1. Enhance Physical and Digital Connectivity:** Accelerate completion of highways, railways, airports, and broadband infrastructure. Strengthen cross-border connectivity under the Act East Policy to integrate NER with ASEAN markets.
- 2. Strengthen Peace and Security Measures:** Deepen peace-building through continued dialogue and implementation of signed accords. Strengthen law enforcement and community participation for lasting stability.
- 3. Promote Organic and Sustainable Agriculture:** Expand initiatives like MOVCDNER and provide

better access to organic markets and cold storage facilities. Encourage value addition and export of local produce.

4. Industrial and Entrepreneurship Promotion:

Develop region-specific industrial corridors and clusters. Empower youth through skill development and support for startups and micro-enterprises.

5. Leverage Tourism and Cultural Heritage:

Develop ecotourism circuits and cultural festivals to promote sustainable tourism. Improve hospitality infrastructure and promote local crafts.

6. Resolve Inter-State and Border Disputes:

Continue dialogue and diplomatic engagement for peaceful settlement of lingering border issues. Use autonomous councils for inclusive governance.

7. Foster Human Capital Development:

Improve access to quality education, vocational training, and healthcare services. Set up centres of excellence and digital skill hubs.

8. Boost Investment through Incentives and Partnerships:

Attract private investment via tax incentives, ease of doing business, and public-private partnerships (PPPs). Strengthen collaboration with Southeast Asian nations in trade, tourism, and technology.

CONCLUSION

The North Eastern Region (NER) is emerging as a critical pillar of India's strategic, economic, and cultural resurgence. Once considered a remote and conflict-prone frontier, it is now being actively integrated into the national mainstream through sustained peace-building, infrastructure expansion, and development-focused governance. Its strategic location as a gateway to Southeast Asia, coupled with rich natural resources, organic farming potential, vibrant cultural heritage, and improving security, makes it central to India's Act East Policy and regional cooperation agenda. However, unlocking its full potential requires addressing deep-rooted challenges such as geographical isolation, infrastructure deficits, and limited private

investment. A balanced approach that prioritizes inclusive development, regional integration, ecological sustainability, and community empowerment is essential.

WEAVING INDIA'S ECONOMY: THE STORY OF THE TEXTILE SECTOR



WHY IN THE NEWS?

The Indian textile sector has recently gained renewed attention due to a series of government initiatives, trade developments, and evolving global dynamics. The announcement and implementation of flagship programs like the PM MITRA Parks and the Production Linked Incentive (PLI) scheme have created a conducive environment for large-scale investment in the industry. In 2023 alone, states like Tamil Nadu and Gujarat signed MoUs with leading textile firms under these schemes, signaling an uptick in industrial momentum.



OVERVIEW OF INDIA TEXTILE SECTOR

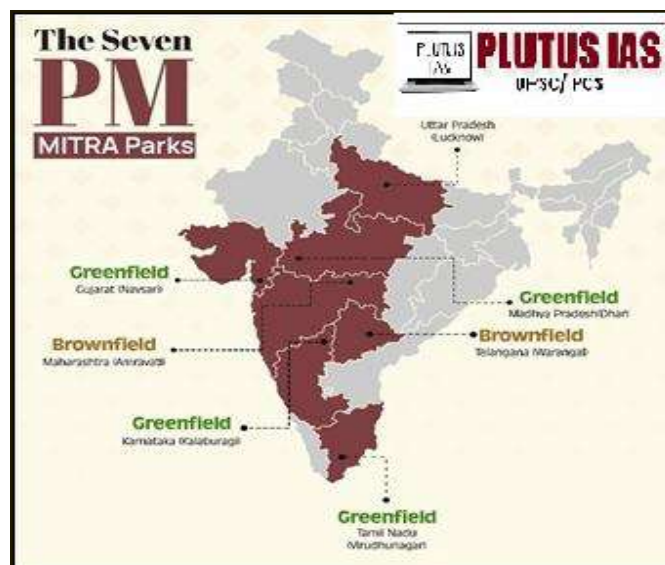
1. The Indian textile sector is one of the oldest industries in the country, dating back several centuries. It contributes about 2.3% to India's GDP and 12% to export earnings (Economic Survey 2022-23). The industry employs over 45 million people directly and around 100 million indirectly (IBEF Report 2023). For example, cities like Tirupur and Surat thrive solely on textile-based employment.
2. India is the second-largest producer of textiles and garments globally, after China. The global market share of Indian textiles stands

at approximately 4%, according to WTO data. The country's capability in producing a wide variety of fibers and yarns makes it globally competitive. According to a McKinsey report, India's cotton yarn exports grew by 13% in 2022, supporting global supply chains.

3. The textile industry comprises both organized and unorganized sectors. While large mills operate in the organized sector, handloom and handicrafts dominate the informal segment. According to the Ministry of Textiles, the unorganized sector contributes nearly 70% of production volume. For instance, the Chanderi weaving cluster in Madhya Pradesh operates largely through traditional looms.
4. The industry is vertically integrated, covering the entire value chain from fiber to apparel. This includes ginning, spinning, weaving, dyeing, and garment production, promoting self-reliance. The Cotton Corporation of India plays a crucial role in stabilizing cotton prices and supply. A 2022 report from CRISIL shows that vertical integration improved margins for large textile firms by 15%.
5. India is a hub for natural fiber-based textiles, particularly cotton. Cotton accounts for around 51% of the total textile production (Textile Ministry Annual Report 2022). Its cultivation is prevalent in states like Maharashtra, Gujarat, and Punjab. In 2022, Maharashtra alone produced over 8 million bales of cotton.
6. The sector also has a significant presence in synthetic fibers and blended textiles. Polyester and viscose are gaining traction due to their durability and affordability. Reliance Industries is a major player in synthetic fiber production in India. The synthetic textiles market in India was valued at \$12 billion in 2022 (ASSOCHAM report).
7. Textile exports are vital to India's foreign exchange reserves. Total exports from the sector amounted to around \$44.4 billion in FY 2022-23 (DGFT Data). Major export destinations include

the US, EU, UAE, and Bangladesh. For instance, apparel exports to the US alone accounted for \$8.3 billion in 2022.

8. The industry is a key player in empowering women and rural artisans. Over 70% of handloom workers are women (National Handloom Census 2019). Initiatives like 'India Handloom Brand' promote traditional skills and products. In 2023, 80% of beneficiaries of the Handloom Marketing Assistance program were women.



TEXTILE SECTOR BASKET – COTTON, JUTE, WOOLEN

1. **Cotton Industry:** India is the largest producer of cotton globally, contributing 23% of world cotton production. As per the Cotton Advisory Board, cotton output reached 36 million bales in 2022-23. Gujarat and Maharashtra are the leading cotton-producing states. For example, Gujarat accounted for 28% of national production in FY23.
2. **Cotton textiles:** form the backbone of the Indian textile export market. Products like bedsheets, shirts, and denim have significant demand globally. The US and EU are major importers of Indian cotton garments. Cotton shirt exports to the US alone were valued at \$1.1 billion in 2022.
3. **Jute Industry:** India is the largest producer of raw jute and jute goods, with West Bengal being the major hub. The jute industry supports around 4 lakh workers and 40 lakh farmers. India produces nearly 1.7 million tonnes of raw jute annually (NJB Report 2023). For example,

the Raghunathganj belt in Murshidabad specializes in jute sacks.

4. Jute is increasingly gaining traction due to eco-friendly demand. Products such as jute bags and carpets are promoted under “Plastic-free India” initiatives. The Ministry of Environment has supported jute packaging to reduce plastic usage. In 2023, the government made jute packaging mandatory for 100% of food grains.
 5. Concentrated in northern India, especially Punjab and Himachal Pradesh. Ludhiana is known as the “Manchester of India” for woolen wear. India imports high-quality raw wool from Australia and New Zealand. For example, 95% of India’s fine wool comes from these imports (Wool Federation 2022).
 6. Woolen textiles cater largely to domestic winterwear demand. Blankets, sweaters, and shawls are some common products. The Khadi and Village Industries Commission (KVIC) supports wool-based rural industries. In 2022, KVIC sold Rs 145 crore worth of woolen products.
 7. Wool production in India is limited, and domestic sheep breeds provide coarse wool. The annual wool production is about 40 million kg, insufficient for the entire industry. Hence, India remains dependent on wool imports for quality garments. For example, Ladakh produces Pashmina wool, but in limited volumes.
 8. The textile basket also includes technical textiles, silk, and man-made fibers. Technical textiles account for nearly 13% of total textile exports (FICCI Report 2023). Silk production is significant in Karnataka and Assam. India is the second-largest producer of silk globally, with over 35,000 MT output in 2022.
2. The scheme promotes local sourcing and self-reliance in textile production. Reduced dependence on Chinese imports has enhanced India’s global standing. According to DPIIT, India’s textile FDI inflow was \$4.4 billion between 2000–2022. Local spinning mills have increased yarn capacity by 10% post-2020.
 3. Infrastructure development under the initiative has boosted the sector. The setting up of Mega Textile Parks is an example of cluster-based growth. PM MITRA parks aim to create world-class industrial infrastructure. The first PM MITRA park was launched in Tamil Nadu in 2023 with a Rs 4,500 crore outlay.
 4. It has led to enhanced employment opportunities across regions. The Textiles Ministry estimates that 1 lakh direct jobs were created under Make in India. Skill India has trained over 11 lakh workers in the apparel sector. In Odisha, over 10,000 artisans were trained in handloom skills under this mission.
 5. Local artisans and MSMEs are integrated into the national supply chain. Initiatives like One District One Product (ODOP) benefit traditional textile clusters. For example, Bhagalpur silk and Banarasi sarees gained national promotion. ODOP reports show that handloom exports from Varanasi rose by 25% in FY23.
 6. Export competitiveness has improved due to enhanced compliance and branding. ‘India Handloom Brand’ ensures quality assurance and market access. The Indian garment sector is now better aligned with global fashion trends. In 2022, Indian textile brands signed contracts with global retailers like H&M and Zara.
 7. New technologies and automation were adopted under this initiative. Textile mills now utilize AI-based quality control and digital printing tech. Investment in R&D rose by 30% in key textile hubs like Surat and Tirupur. Example: Raymond Ltd. launched a smart fabric line with anti-viral properties.
 8. Make in India has helped position India as an emerging textile hub. India was ranked among the top three textile manufacturing destinations

IMPACT OF MAKE IN INDIA ON TEXTILE INDUSTRY

1. The ‘Make in India’ initiative has reinvigorated interest in domestic manufacturing. It has encouraged FDI and large-scale investments in textile parks. For instance, Arvind Ltd. and Welspun have expanded facilities under this push. Welspun invested Rs 2,000 crore in a smart textile park in Gujarat in 2022.

globally (McKinsey Report 2022). The country aims to double its textile exports to \$100 billion by 2030. As per Texprocil, export orders from EU brands grew by 18% in 2023.



GOVERNMENT INITIATIVES TO PROMOTE TEXTILE INDUSTRY

- 1. PM MITRA (Mega Integrated Textile Region and Apparel) Parks:** Launched to boost integrated textile value chains across 7 states. Each park is expected to attract Rs 10,000 crore investment and create 1 lakh jobs. The Tamil Nadu park already signed MoUs with 13 textile firms in 2023.
- 2. Production Linked Incentive (PLI) Scheme:** Offers incentives for high-value MMF and technical textile production. Rs 10,683 crore has been allocated, expecting \$20 billion in additional output. In FY23, 64 companies qualified for incentives under PLI for textiles.
- 3. National Technical Textiles Mission:** Aims to increase India's share in global technical textiles to 10% by 2025. Rs 1,480 crore is set aside for R&D and capacity building. In 2023, 40 new technical textile startups were incubated under the mission.
- 4. Skill India and SAMARTH schemes:** Provide skill training to youth in apparel and textile operations. Over 13 lakh people trained under SAMARTH since its inception in 2017. States like Andhra Pradesh and Tamil Nadu lead in certified textile trainees.
- 5. Amended Technology Upgradation Fund Scheme (ATUFS):** Supports modernization of textile machinery and infrastructure. Rs 17,822 crore worth of investment mobilized under

ATUFS till 2023. Around 10,000 units benefited from machinery upgradation support.

- 6. Export Promotion Measures:** Includes RoDTEP, RoSCTL, and duty drawback benefits for exporters. Apparel exports to the US rose by 20% post-extension of RoSCTL in 2022. RoDTEP covered 1,000+ textile HS codes in 2023 to ensure cost competitiveness.
- 7. Handloom and Handicraft Development Programs:** National Handloom Development Program supports design and marketing. Over 1.5 lakh artisans benefitted under the Handicraft Mega Cluster scheme. For instance, the Kullu shawl cluster in Himachal Pradesh received Rs 22 crore in 2022.

CHALLENGES FACED BY THE INDIAN TEXTILE SECTOR

- 1. Infrastructure Gaps and High Logistics Costs:** Inadequate warehousing, port connectivity, and inland transport raise production costs. According to the Ministry of Commerce, logistics costs account for 13–14% of textile exports versus the global average of 8–9%.
- 2. Fragmented and Unorganized Nature:** A large portion of the sector is still unorganized, leading to inconsistent quality and lack of economies of scale. As per the Textile Committee 2022 report, over 70% of textile units are micro or small enterprises lacking formal financing.
- 3. Global Competition and Pricing Pressure:** Countries like Bangladesh and Vietnam offer lower labor costs and better export incentives. For instance, India's average unit price of garment exports is 15–20% higher than Bangladesh, affecting competitiveness.
- 4. Technology Obsolescence:** Many units still use outdated machinery, reducing productivity and fabric quality. A CITI survey in 2023 revealed that only 38% of spinning mills use modern machinery with AI/automation.
- 5. Environmental Concerns and Sustainability:** High water consumption and chemical effluents in dyeing units raise environmental alarms. According to CPCB, the textile sector is the

second-largest industrial polluter of water bodies in India.

6. **Raw Material Volatility:** Cotton price fluctuations and dependency on imported wool impact production planning. For example, cotton prices surged by 40% in 2022 due to erratic monsoons and global supply chain issues.
7. **Skilling and Labor Productivity Issues:** Despite employment potential, many workers lack formal training in modern techniques. As per NSDC, 60% of textile workers are semi-skilled or unskilled, affecting efficiency.
8. **Bureaucratic Hurdles and Compliance Load:** Multiple licenses, GST complications, and frequent policy changes deter small-scale manufacturers. A FICCI report flagged that MSMEs spend nearly 18 days annually on compliance-related paperwork alone.

WAY FORWARD

1. **Strengthening Infrastructure and Cluster Development:** Accelerate completion of PM MITRA parks and improve multimodal connectivity to reduce logistics costs. Adopt smart infrastructure and green buildings to promote sustainability.
2. **Modernizing Machinery and Promoting R&D:** Expand ATUFS and PLI coverage to include mid-sized enterprises for wider technology adoption. Establish more textile innovation hubs in collaboration with IITs and NIFT.
3. **Promoting Sustainable and Circular Textiles:** Incentivize eco-friendly processes and use of organic fibers through green certifications. Develop waterless dyeing and biodegradable fiber technologies.
4. **Skill Development with Industry Collaboration:** Deepen industry-academia tie-ups for demand-driven skilling programs. Introduce apprenticeship-led training to improve productivity at the grassroots level.
5. **Enhancing Export Competitiveness:** Negotiate favorable trade agreements like India-EU FTA to access larger markets. Simplify GST refund mechanisms and expedite RoDTEP

reimbursements for MSMEs.

6. **Empowering Handloom and Traditional Clusters:** Digitize supply chains of rural artisans and integrate them into e-commerce platforms. Use Geographical Indications (GI) and branding to boost exports of niche products.
7. **Encouraging FDI and Joint Ventures:** Attract foreign textile brands to set up sourcing and production bases in India. Example: Encourage collaborations similar to the Aditya Birla-Zara alliance for fast fashion.

CONCLUSION

The Indian textile sector, with its vast diversity, rich heritage, and skilled manpower, holds the promise of becoming a global textile powerhouse. While it has significantly benefitted from initiatives like Make in India, PM MITRA, and PLI schemes, persistent structural and operational challenges need resolution. By modernizing infrastructure, enhancing sustainability, and empowering both artisans and entrepreneurs, India can achieve its vision of doubling textile exports and creating millions of jobs. Strategic reforms and inclusive growth will be key to positioning India not just as the world's supplier but as a global trendsetter in textiles.

PRELIMS QUESTIONS

1. **With reference to the Finance Bill, consider the following statements:**

1. The Finance Bill is always a Money Bill as per Article 110 of the Indian Constitution.
2. The Finance Bill includes provisions related to taxation, borrowings, and expenditure of the government.
3. Once passed by Parliament, the Finance Bill becomes the Finance Act, giving legal effect to tax changes.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

2. Consider the following statements regarding India's bio-economy:

1. India's bio-economy contributes 4.25% to its GDP.
2. The Bio-Saarthi Initiative is a global mentorship program for biotech startups.
3. The Production Linked Incentive (PLI) scheme is exclusively for bio-manufacturing.

Which of the 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. Consider the following statements regarding the Pradhan Mantri Matsya Sampada Yojana (PMMSY):

1. PMMSY was launched in 2020 with an investment of Rs. 20,050 crore to develop the fisheries sector in India.
2. The scheme exclusively focuses on improving marine fisheries and excludes inland aquaculture.
3. PMMSY aims to formalize the fisheries sector by supporting small-scale fisheries and promoting technological advancements.

How many of the statements given above are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

4. With reference to India's food processing industry, consider the following statements:

1. India is the largest producer of fruits, vegetables, and milk globally.
2. The Production Linked Incentive Scheme for Food Processing Industry (PLISFPI) was launched in 2020 to support food processing units.
3. The Ministry of Food Processing Industries (MoFPI) is responsible for implementing the Pradhan Mantri Kisan Sampada Yojana (PMKSY).

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

5. Consider the following statements regarding the Pradhan Mantri MUDRA Yojana (PMMY):

1. It provides collateral-free loans up to ₹20 lakh to micro and small enterprises.
2. Loans under PMMY are only available through Scheduled Commercial Banks.
3. The scheme classifies loans into Shishu, Kishor, and Tarun categories based on loan amount.

Which of the statements given above is/are correct?

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

6. Consider the following statements regarding the North Eastern Region (NER) of India:

1. It shares borders with only two countries – Bangladesh and Myanmar.
2. The Act East Policy positions the NER as India's gateway to Southeast Asia.
3. The PM-DevINE scheme focuses exclusively on promoting tourism in the region.

Which of the statements is/are correct?

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

7. With reference to the Indian textile sector, consider the following statements:

1. India is the largest producer and exporter of cotton in the world.
2. The textile sector accounts for over 10% of India's total export earnings.
3. The unorganized segment of the textile industry contributes less than 30% of total production.

Which of the above statements is/are correct?

- A. 1 only
B. 2 only
C. 1 and 2 only
D. 2 and 3 only

ANSWER

1. B	2. A	3. A	4. B	5. A	6. B	7. C
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MAINS QUESTIONS

1. Discuss the significance of the Finance Bill in India's economic governance. How does it differ from a Money Bill and an Ordinary Bill?

(250 words, 15 marks)

2. Discuss the growth, significance, and challenges of India's bio-economy. Suggest measures to strengthen this sector.

(250 words, 15 marks)

3. Discuss the objectives and key components of the Pradhan Mantri Matsya Sampada Yojana (PMMSY). How does the scheme aim to address the challenges faced by the fisheries sector in India?

(250 words, 15marks)

4. Analyze the key challenges facing India's farm-to-retail food supply chain and suggest measures to strengthen it.

(250 words, 15marks)

5. Critically examine the achievements and challenges of PMMY. Suggest measures to enhance its effectiveness.

(250 words, 15marks)

6. The North Eastern Region (NER) of India is no longer a periphery but a pivotal pillar of India's Act East Policy and economic transformation." Discuss the strategic, economic, and developmental significance of the NER and suggest a way forward for harnessing its full potential.

(250 words, 15marks)

7. Evaluate the impact of the 'Make in India' initiative on revitalizing India's textile sector. How has it helped in improving global competitiveness?

(250 words, 15marks)





INDIA STRENGTHENS DEFENCE MIGHT WITH NAG MISSILE SYSTEM PROCUREMENT



WHY IN THE NEWS?

The Ministry of Defence has signed a ₹2,500 crore contract for the procurement of the Nag Missile System (NAMIS) and 5,000 light vehicles, marking a significant step in bolstering India's defence capabilities. The deal, signed in the presence of Defence Secretary Rajesh Kumar Singh, aims to enhance indigenisation and strengthen the Indian defence manufacturing sector. NAMIS, an advanced fire-and-forget anti-tank weapon system, will modernise the Indian Army's anti-tank capabilities, while the new light vehicles—designed for enhanced mobility and payload capacity—will improve the operational readiness of the Armed Forces across diverse terrains. The contract also supports employment generation, particularly in the MSME sector, by encouraging local manufacturing of components.



WHAT IS A NAG MISSILE?

The Nag Missile (meaning "Cobra" in Sanskrit) is an Indian third-generation, fire-and-forget, anti-tank guided missile (ATGM) developed by the Defence Research and Development Organisation (DRDO) under the Integrated Guided Missile Development Program (IGMDP). It is designed to destroy heavily armoured enemy tanks and other military vehicles.

KEY FEATURES OF NAG MISSILE

- 1. Fire-and-Forget Technology:** Uses an Imaging Infrared (IIR) seeker to autonomously track and destroy targets without requiring further input from the operator.
- 2. Tandem-Charge Warhead:** Equipped with a high-explosive anti-tank (HEAT) warhead capable of penetrating the Explosive Reactive Armor (ERA) of modern tanks.
- 3. Multiple Variants:** Includes NAMICA (land-based), HELINA (air-launched), MPATGM (man-portable), and a millimetric-wave (mmW) seeker version for enhanced tracking.
- 4. All-Weather, Day & Night Capability:** Can function in extreme weather conditions, including deserts, fog, and low-visibility scenarios.
- 5. High Accuracy & Hit Probability:** Achieves a 90% single-shot hit probability, ensuring high effectiveness on the battlefield.
- 6. Multiple Attack Modes:** Can execute Top-Attack (penetrating the weaker top armour of tanks) and Direct Attack modes for flexible engagement strategies.
- 7. Extended Operational Range:** Land-based variant has a range of 500 meters to 4 km, while the helicopter-launched version (HELINA) extends up to 7-10 km.

8. **Advanced Guidance System:** Uses real-time image processing, CCD camera integration, and digital autopilot for improved tracking and accuracy.
9. **Multiple Launch Platforms:** Can be launched from NAMICA (Nag Missile Carrier), helicopters (HELINA/Dhruvastra), and future air-launched platforms.

GOVT. INITIATIVE TO PROMOTE SELF-RESILIENCE IN DEFENCE TECHNOLOGY

1. **Aatmanirbhar Bharat in Defence:** 75% of ₹1 lakh crore defence budget reserved for domestic procurement in 2023-24.
2. **Defence Acquisition Procedure (DAP) 2020:** Prioritizes Indigenously Designed, Developed, and Manufactured (IDDM) products & simplifies private sector entry.
3. **Positive Indigenisation Lists:** 509 defence items (missiles, UAVs, helicopters) were banned from import to boost local production.
4. **Defence Industrial Corridors (DICs):** ₹20,000+ crore investment in Tamil Nadu & UP, fostering 150+ defense industries.
5. **Make in India & Make-II:** Encourages local manufacturing & private sector involvement in defence production.
6. **Innovations for Defence Excellence (iDEX):** ₹500 crore fund to support 300+ startups in AI, drones, and robotics.
7. **FDI Policy in Defence:** FDI limit raised to 74% (automatic) and 100% (with approval), boosting foreign investment & tech transfer.
8. **Defence Exports:** India's defense exports hit ₹16,000 crore in 2022-23, targeting ₹35,000 crore by 2025.
9. **Corporatisation of Ordnance Factories:** OFB restructured into 7 PSUs for efficiency in ammunition & arms production.
10. **Strategic Partnership Model (SPM):** Enables Indian firms & foreign defence giants to co-develop jets, submarines, & helicopters.

WHAT ARE THE CHALLENGES IN SELF-RESILIENCE IN DEFENCE TECHNOLOGY?

1. **Dependence on Foreign Technology:** High reliance on imports for critical components like jet engines, radars, and semiconductors.
2. **Limited R&D & Innovation:** Low defence R&D spending (less than 1% of GDP), with slow private sector participation.
3. **Complex Procurement Process:** Bureaucratic delays and regulatory hurdles slow down Indigenous defence projects.
4. **Weak Defence Manufacturing Ecosystem:** Lack of advanced infrastructure and specialized suppliers for high-tech weapons.
5. **Insufficient Private Sector Involvement:** Large defence PSUs dominate, limiting opportunities for private companies and startups.
6. **Skilled Workforce Shortage:** Need for more experts in AI, cyber warfare, aerospace, and missile technology.
7. **High Cost & Long Development Time:** Indigenous projects like Tejas Arjun Tank took decades, increasing costs and delays.
8. **Limited Export Competitiveness:** Indian defence products struggle to compete globally due to technology gaps and quality concerns.
9. **Cybersecurity & AI Risks:** Growing threats of cyber warfare and AI-based attacks require stronger indigenous digital defence systems.

WAY FORWARD

1. **Boost R&D Investment:** Increase defence R&D spending (currently <1% of GDP) and promote indigenous innovation through DRDO, academia, and private sector collaboration.
2. **Strengthen Defence Manufacturing:** Develop a robust domestic supply chain for critical components like jet engines, semiconductors, and avionics to reduce import dependence.
3. **Faster Procurement & Policy Reforms:** Simplify bureaucratic procedures, ensure time-bound approvals, and promote Make in India through Defence Acquisition Procedure (DAP) 2020.

- 4. Encourage the Private Sector & Startups:** Provide financial incentives, ease FDI norms (currently 74% under automatic route), and foster startups under iDEX (Innovations for Defence Excellence).
- 5. Focus on Emerging Technologies:** Invest in AI, cyber warfare, quantum computing, and hypersonic weapons to build next-gen defence capabilities.
- 6. Improve Skilling & Talent Development:** Strengthen technical education, R&D institutions, and industry-academia collaborations to build a skilled workforce.
- 7. Enhance Defence Exports:** Achieve the target of \$5 billion in defence exports by 2025 by promoting Indian-made weapons, missiles, and aircraft in global markets.
- 8. Public-Private Partnerships (PPP):** Strengthen collaboration between DRDO, DPSUs, and private firms to accelerate indigenous development.

CONCLUSION

Achieving self-reliance in defence technology requires a multi-faceted approach involving increased R&D investment, strong policy support, private sector participation, and a focus on emerging technologies. With sustained efforts, India can reduce import dependence, strengthen its defence ecosystem, and become a global defence manufacturing hub, ensuring long-term national security and strategic autonomy.

**ASTROSCALE JAPAN
PARTNERS WITH INDIA'S
DIGANTARA & BELLATRIX
AEROSPACE TO TACKLE
SPACE DEBRIS**



WHY IN THE NEWS?

Japan's Astroscale, a leading space debris removal firm, has partnered with Bengaluru-based Digantara and Bellatrix Aerospace to develop orbital servicing solutions for India. The collaboration aims to provide on-orbit services for Indian government clients within the next 1-2 years, marking Astroscale's first

major operation in the Asia-Pacific beyond Japan. India's space sector liberalization and growing private participation have made it an attractive market for Astroscale, which is also exploring opportunities in South Korea, Taiwan, Indonesia, and Australia. The partnership aligns with India's push for space situational awareness and satellite servicing, as the risk of orbital collisions is projected to exceed \$500 million over the next five years. This move reflects increasing India-Japan space collaboration, with other tie-ups like ispace-Skyroot and Orbital Lasers-InspeCity. The two governments are set to hold their third "space dialogue" in Tokyo soon, further strengthening bilateral cooperation.



WHAT IS SPACE DEBRIS?

Space debris, also known as orbital debris or space junk, refers to non-functional, human-made objects left behind in Earth's orbit. These include defunct satellites, spent rocket stages, fragments from collisions or explosions, and even lost tools from space missions. As these objects travel at extremely high speeds—often exceeding 28,000 km/h—they pose a significant risk to active satellites, space stations, and future space missions. The accumulation of debris increases the chances of collisions, potentially triggering the Kessler Syndrome, where cascading collisions create even more fragments, making Earth's orbit dangerously cluttered. Managing space debris is crucial for ensuring the safety and sustainability of space exploration, with efforts focusing on debris tracking, removal missions, and better satellite disposal strategies.

STATUS OF SPACE DEBRIS

Space debris has become a growing challenge due to the increasing number of satellites and space missions. According to NASA and the European Space Agency (ESA), there are over 36,000 tracked pieces of debris larger than 10 cm, 1 million pieces between 1-10 cm, and more than 130 million tiny fragments (smaller than 1 cm) orbiting Earth at high speeds.

KEY CONCERNS:

- 1. Rising Satellite Launches:** With thousands of satellites launched for communication, navigation, and Earth observation, space congestion is increasing.
- 2. Kessler Syndrome Risk:** The risk of cascading collisions is growing, which could make certain orbits unusable.
- 3. Danger to Active Satellites & ISS:** Space debris poses a constant threat to operational spacecraft, including the International Space Station (ISS) and commercial satellites.
- 4. Space Debris Management Efforts:** Organizations like NASA, ESA, and private companies (e.g., Astroscale, ClearSpace-1) are developing debris removal and tracking technologies.

IMPACT OF SPACE DEBRIS

- 1. Threat to Satellites & Spacecraft**
 - Collisions & Damage:** Even small debris travelling at 28,000 km/h can disable or destroy satellites.

- Operational Disruptions:** Damage to solar panels, antennas, and critical systems leads to malfunctions or failure.
- Rising Costs:** Frequent avoidance maneuvers, repairs, and replacements increase operational expenses.

2. Risk to Space Missions & Astronauts

- ISS & Crew Safety:** The International Space Station (ISS) faces collision threats, forcing astronauts to take emergency measures.
- Spacewalk Hazards:** Floating debris can puncture astronaut suits and spacecraft, posing life-threatening risks.

3. Disruptions to Global Services

- Loss of Communication & Navigation:** Damaged satellites affect the internet, GPS, weather forecasting, and Earth monitoring.
- Economic Impact:** Industries like finance, transport, and agriculture suffer due to satellite failures.
- Scientific Setbacks:** Disruptions hinder climate research, disaster response, and space exploration.

4. Environmental & Long-Term Dangers

- Kessler Syndrome:** A chain reaction of collisions could make orbits unusable, threatening future missions.
- Re-entry Hazards:** Large debris can survive atmospheric re-entry, posing risks on Earth.
- Light & Space Pollution:** Rising debris levels disrupt astronomy and contaminate space.

VARIOUS INTERNATIONAL MISSIONS TO CONTROL SPACE DEBRIS

Category	Mission/Initiative	Country/Agency	Objective
Active Debris Removal (ADR)	ELSA-d	Astroscale (Japan)	Demonstrated satellite docking and debris removal.
	ClearSpace-1 (2026)	ESA (Europe)	Plans to capture and deorbit defunct satellites.
	RemoveDEBRIS (2018)	UK/Surrey Space Centre	Tested debris capture using a net and harpoon system.
Space Surveillance & Tracking	Orbital Debris Program	NASA (USA)	Monitors and models space debris risks.

Category	Mission/Initiative	Country/Agency	Objective
	US Space Surveillance Network (SSN)	US DoD	Tracks over 36,000 objects in orbit.
	ESA Space Debris Office	ESA (Europe)	Develops tracking and mitigation strategies.
Global Guidelines & Regulations	UN COPUOS	United Nations	Sets international guidelines for debris mitigation.
	IADC	Multi-agency (NASA, ESA, ISRO, etc.)	Coordinates global space debris management.
	FCC Regulations	USA	Enforces satellite deorbiting rules for commercial launches.
Future Technologies & Research	Electrodynamic Tether	JAXA (Japan)	Uses a tether to drag debris into Earth's atmosphere.
	Laser-Based Systems	ESA (Europe)	Researching laser nudging to move debris.
	Indian Space Debris Management	ISRO, Digantara, Bellatrix (India)	Developing debris tracking and removal solutions.

INDIA AND SPACE DEBRIS

- NETRA (Network for Space Object Tracking and Analysis):** ISRO's initiative to monitor space debris and protect Indian satellites from potential collisions.
- Project Kessler by Digantara:** A space situational awareness (SSA) program to track and analyze orbital debris, improving collision predictions.
- Bellatrix Aerospace's Propulsion Systems:** Developing advanced electric and green propulsion systems to extend satellite lifespan and reduce space junk.
- ISRO's Space Debris Mitigation Guidelines:** Implementing policies on post-mission disposal, collision avoidance, and sustainable satellite operations.
- India-Japan Collaboration with Astroscale:** Partnering with Japanese firm Astroscale for future active debris removal (ADR) missions.
- International Cooperation (IADC Membership):** India is part of the Inter-Agency Space Debris

Coordination Committee (IADC), working with global agencies to improve debris management.

WHAT ARE THE WAYS TO REDUCE AND CONTROL?

- Designing Debris-Free Satellites:** Satellites and rockets should be designed for safe deorbiting at the end of their mission to prevent the accumulation of junk.
- Controlled Deorbiting & Disposal:** Defunct satellites can be directed to either burn up in Earth's atmosphere or move to a "graveyard orbit" away from active space zones.
- Reducing Explosions & Collisions:** Proper fuel venting, battery passivation, and structural reinforcements can prevent accidental breakups of defunct space objects.
- Active Debris Removal (ADR) Technologies:**
 - Robotic Arms & Nets:** Capturing and removing large debris pieces.

- **Electrodynamic Tethers:** Dragging debris into Earth's atmosphere for safe disposal.
 - **Laser-Based Systems:** Using ground-based or space-based lasers to push debris out of critical orbits.
- 5. Space Situational Awareness (SSA) & Tracking:** Advanced radars and AI-powered monitoring systems help predict and prevent satellite collisions.
- 6. International Regulations & Cooperation**
- **UN Space Debris Mitigation Guidelines:** Encouraging responsible space behaviour.
 - **IADC (Inter-Agency Space Debris Coordination Committee):** Coordinating global debris control efforts.
 - **National Policies (ISRO, NASA, ESA, etc.):** Implementing strict deorbiting and disposal laws for new launches.
- 7. Sustainable Space Practices**
- **Reusable Rockets & Satellites:** SpaceX's Falcon 9 and ISRO's RLV-TD reduce debris generation.
 - **Green Propulsion Technologies:** Using efficient propulsion systems to minimize satellite failures and unnecessary launches.

CONCLUSION

The growing challenge of space debris requires immediate and sustained global efforts to ensure the long-term sustainability of space activities. Nations and private companies must work together to implement effective mitigation strategies, such as active debris removal, responsible satellite disposal, and advanced tracking systems. India's increasing role in space debris management, through

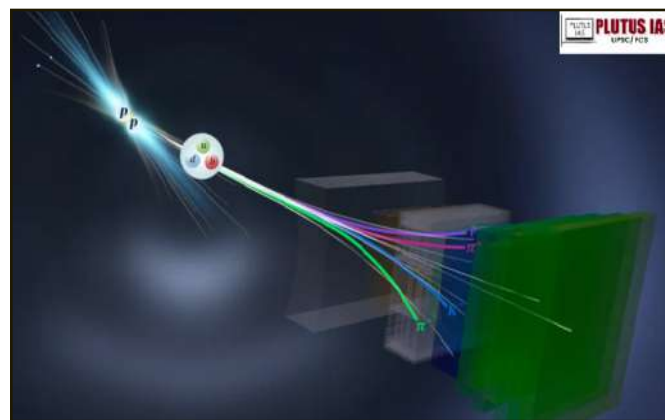
initiatives like NETRA, Digantara, and international collaborations with Japan's Astroscale, reflects its commitment to space sustainability. Strengthening global policies, enforcing stricter regulations, and investing in cutting-edge technologies will be essential in preserving Earth's orbit for future generations and safeguarding critical space infrastructure.

MATTER AND ANTIMATTER



WHY IN THE NEWS?

Physicists at the Large Hadron Collider have discovered a new case of charge-parity (CP) violation, this time in baryons, particles like protons and neutrons. Previously, CP violation had only been confirmed in mesons. The study, focusing on lambda-b baryons, found a slight difference in how these particles and their antimatter counterparts decay, crossing the five-sigma threshold for discovery. This finding could help explain why matter dominates the universe despite the Big Bang producing equal amounts of matter and antimatter. While it doesn't solve the mystery, it brings scientists one step closer to understanding the imbalance that shaped our universe.



WHAT IS MATTER VS ANTIMATTER?

Aspect	Matter	Antimatter
Definition	Makes up everything in the universe	The "mirror twin" of matter
Examples	Protons, neutrons, electrons	Antiprotons, antineutrons, positrons
Charge	Normal charge (e.g., proton is +1)	Opposite charge (e.g., antiproton is -1)
Interaction	Stable and forms atoms	Annihilates upon contact with matter

Aspect	Matter	Antimatter
Annihilation	Doesn't naturally annihilate	Matter + antimatter → Energy (gamma rays)
Mystery	Dominates the universe	It should have existed in equal amounts but is nearly absent
Research Focus	Understanding why it dominates	CP violation could explain the imbalance

RECENT DEVELOPMENTS IN CHARGE PARITY PHENOMENA

- 1. First CP Violation in Baryons:** LHCb observed CP violation in beauty-lambda baryons (Λ_b), marking the first confirmed instance in baryons.
- 2. Charm Sector CP Violation:** The CMS experiment detected CP violation in charm quark decays, a crucial step in understanding matter-antimatter asymmetry.
- 3. Significant B_{meson} Meson Measurements:** New data from LHCb and CMS provide strong evidence of CP violation in B_{meson} meson decays, refining theoretical models.
- 4. Neutrino CP Violation Studies:** The NOvA experiment hints at CP violation in neutrino oscillations, which could impact our understanding of fundamental physics.
- 5. Matter-Antimatter Imbalance Insights:** These findings contribute to explaining why the universe consists mainly of matter despite equal production of matter and antimatter in the Big Bang.
- 6. Five-Sigma Discovery Threshold Crossed:** The LHCb results on Λ_b baryons met the statistical requirement for a scientific discovery, solidifying the findings.
- 7. Refinement of the Standard Model:** CP violation studies help physicists test and refine the Standard Model, potentially pointing to new physics beyond it.
- 8. Future Experiments & Theories:** Ongoing and upcoming studies, including upgrades at the LHC and future neutrino experiments, aim to deepen our understanding of CP violation and the universe's asymmetry.

SIGNIFICANCE OF THIS NEW DISCOVERY

- 1. Explains the Matter-Antimatter Imbalance:** The universe should have equal amounts of matter and antimatter, but we see mostly matter. CP violation helps explain why matter dominated after the Big Bang instead of annihilating with antimatter.
- 2. First Confirmation in Baryons:** Previously, CP violation was only observed in mesons (particles with one quark and one antiquark). Now, for the first time, it's confirmed in baryons (three-quark particles like protons and neutrons), broadening our understanding.
- 3. Strengthens the Standard Model:** The Standard Model of physics predicts CP violation but doesn't fully explain why matter dominates. This discovery gives scientists new data to refine existing theories.
- 4. Opens the Door to New Physics:** If CP violation in baryons behaves unexpectedly, it could hint at new physics beyond the Standard Model, such as new particles or forces.
- 5. Validates the Large Hadron Collider's Capabilities:** The LHCb experiment at CERN continues to push the boundaries of particle physics, proving its ability to make groundbreaking discoveries.
- 6. Guides Future Research:** Scientists can now study CP violation in more types of particles, especially neutrinos and other undiscovered baryons, to find deeper answers. This is a big step toward solving one of physics' greatest mysteries.

CONCLUSION

The recent discovery of CP violation in baryons is a groundbreaking step toward understanding the universe's matter-antimatter imbalance. By confirming this phenomenon in particles like lambda

b baryons, scientists have expanded the scope of known CP violation beyond mesons. This finding strengthens the Standard Model while also hinting at possible new physics. It validates the capabilities of the Large Hadron Collider and opens doors for future research into neutrinos and other subatomic particles. While this discovery doesn't fully explain why matter dominates the universe, it provides a crucial piece of the puzzle, bringing us closer to unlocking one of physics' greatest mysteries.

INCLUSIVE ARTIFICIAL INTELLIGENCE FOR DEVELOPMENT



WHY IN THE NEWS?

Artificial Intelligence (AI) is reshaping economies and societies, offering significant potential to accelerate sustainable development. However, many developing countries face challenges in harnessing its benefits due to insufficient digital infrastructure, limited data access, and a lack of necessary skills. To bridge the gap with leading economies, developing countries should swiftly implement AI policies to overcome barriers to AI diffusion consistent with their development strategies and goals while addressing possible economic and social downsides of AI. The cross-

border impacts of AI further highlight the need for global collaboration to make it accessible and beneficial for all, fostering inclusive innovation to tackle global challenges. As AI development is highly concentrated in a few countries and companies, stronger international cooperation is crucial to co-create inclusive governance mechanisms and to ensure AI will drive sustainable progress rather than deepening existing inequalities.



WHAT IS AI AND ITS TYPES

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and make decisions. These machines can perform tasks that typically require human cognition, such as reasoning, problem-solving, perception, language understanding, and learning from experience. AI systems work using algorithms, vast data sets, and computational power to mimic intelligent behaviour, adapt to inputs, and improve over time.

Category	Type	Description	Examples / Status
Based on Capability	Narrow AI	Performs specific tasks, limited scope	Siri, Alexa, Google Translate
	General AI	Human-like intelligence across tasks	Under development
	Super AI	Surpasses human intelligence	Theoretical / Hypothetical
Based on Functionality	Reactive Machines	No memory, responds to current input only	IBM's Deep Blue Chess computer
	Limited Memory	Uses past data for decisions	Self-driving cars, recommendation systems
	Theory of Mind	Understands emotions, intentions	In research phase
	Self-aware AI	Has self-consciousness and awareness	Hypothetical / Future possibility

LEVERAGING AI IN VARIOUS FIELDS

1. **Healthcare:** AI aids in early and accurate diagnosis through imaging analysis, supports drug discovery, enables robotic surgeries, and provides virtual health assistants for patient care.
2. **Agriculture:** Helps in precision farming, real-time crop and soil monitoring, pest detection, and yield forecasting, boosting productivity and sustainability.
3. **Education:** Enables personalized learning experiences, AI tutors, automated grading systems, and predictive analytics to improve student outcomes.
4. **Finance:** Enhances fraud detection, enables algorithmic trading, automates credit scoring, and provides smart financial advisory through AI-powered chatbots.
5. **Manufacturing:** Improves efficiency with predictive maintenance, AI-driven quality control, smart automation, and optimization of supply chains.
6. **Transportation:** Powers self-driving vehicles, enhances traffic management systems, streamlines smart logistics, and supports drone-based delivery.
7. **Retail:** AI enhances customer experience through behaviour analysis, manages inventory, offers virtual try-on tools, and enables dynamic pricing strategies.
8. **Defense and Security:** Assists in surveillance, autonomous drones, threat detection systems, and analysis of large-scale security data.
9. **Environment:** Supports climate modelling, disaster forecasting, pollution control, and wildlife monitoring for ecological conservation.
10. **Governance:** AI improves public service delivery through e-governance, decision-making support, citizen grievance redressal, and increased administrative efficiency.

GOVT POLICIES, NATIONAL AND INTERNATIONAL

National (India)

1. **National Strategy for AI (NITI Aayog):** Known as AIForAll, it focuses on inclusive growth in

key areas: healthcare, agriculture, education, smart mobility, and smart cities. growth in key areas: healthcare, agriculture, education, smart mobility, and smart cities.

2. **National Programme on AI (MeitY):** Implements AI in government services and builds AI computing infrastructure and R&D.
3. **IndiaAI Mission (Upcoming):** Proposed comprehensive mission with a focus on AI research, compute infrastructure, datasets, startups, and skilling.
4. **Responsible AI for Youth:** Initiative to train students in ethical AI use.
5. **AI in Digital India:** Integration of AI in e-governance, digital health, education portals, and public grievance systems.
6. **Data Governance Framework:** Under development to manage AI datasets, privacy, and responsible data sharing.
7. **Centre for AI (CAIR, IITs, IIITs):** Government supports academic institutions for research and innovation in AI.
8. **AI-related PLI Schemes:** Encourage electronics, chip-making, and AI hardware manufacturing.

International

1. **OECD Principles on AI (2019):** Focus on trustworthy, transparent, and human-centred AI.
2. **UNESCO Recommendation on AI Ethics (2021):** First global framework on AI ethics, ensuring rights, privacy, and fairness.
3. **European Union AI Act (Ongoing):** A risk-based regulation classifying AI systems and regulating high-risk AI.
4. **USA – National AI Initiative Act (2020):** Promotes AI leadership, R&D, education, and ethical standards.
5. **China – Next Gen AI Development Plan (2017):** Ambitious AI leadership goals by 2030 through massive state investment.
6. **Global Partnership on AI (GPAI):** India is a founding member and promotes responsible and inclusive AI globally.

7. **G20 & BRICS AI Cooperation:** Platforms to share best practices and regulate AI across borders.

CHALLENGES IN AI

1. **Data Privacy and Security:** AI systems rely on vast data, raising concerns over misuse, surveillance, and breaches of personal privacy.
2. **Bias and Discrimination:** AI can reflect or even amplify societal biases present in training data, leading to unfair decisions.
3. **Lack of Explainability (Black Box Problem):** Many AI models, especially deep learning, work in opaque ways, making it hard to understand or trust their decisions.
4. **Job Displacement and Unemployment:** Automation through AI threatens traditional jobs, particularly in routine or repetitive sectors.
5. **Ethical and Legal Issues:** Moral dilemmas arise in areas like autonomous weapons, predictive policing, and AI-based surveillance.
6. **High Cost and Infrastructure Needs:** Developing and deploying AI systems require advanced computing power and large-scale infrastructure.
7. **Skilling and Talent Gap:** Shortage of trained professionals in AI research, data science, and ethical AI governance.
8. **Fragmented Regulation and Governance:** Lack of a unified global or national AI regulatory framework hampers responsible innovation.
9. **Misinformation and Deepfakes:** AI tools can be misused to create fake images, videos, or content, threatening democratic processes.
10. **Cybersecurity Risks:** AI systems themselves can be vulnerable to adversarial attacks or used to create smart malware.

GLOBAL COOPERATION FOR INCLUSIVE AND EQUITABLE AI

1. **Promoting Shared Ethical Standards:** Establishing global ethical guidelines through platforms like UNESCO's Recommendation on the Ethics of AI ensures fairness, transparency, and human rights in AI deployment.

2. **Bridging the Digital Divide:** Developed nations can support developing countries through technology transfer, funding, and capacity building to prevent AI-driven inequalities.
3. **Global Research Collaborations:** Joint AI research projects between countries and multilateral institutions can foster innovation while respecting local contexts.
4. **Inclusive AI Policy Frameworks:** International cooperation through forums like OECD, G20, and UN can harmonize policies on data governance, algorithmic transparency, and cross-border AI use.
5. **Open Data and Infrastructure Sharing:** Encouraging global open-source AI tools, datasets, and models can democratize AI access and reduce costs for low-income nations.
6. **AI for Sustainable Development Goals (SDGs):** Collaborative use of AI in areas like healthcare, agriculture, and climate action can accelerate SDG progress in underrepresented regions.
7. **Global Capacity Building Initiatives:** Training programs and AI skill development partnerships led by tech-advanced nations can empower youth and professionals in the Global South.
8. **Preventing AI Weaponization and Abuse:** Global treaties and norms are essential to regulate military AI, facial recognition, and autonomous systems to prevent misuse and ensure peace.

CONCLUSION

Artificial Intelligence holds transformative potential to drive innovation, improve service delivery, and address developmental challenges. However, to ensure that AI benefits all sections of society and aligns with sustainable development goals, it is essential to bridge the digital divide, promote ethical standards, and foster inclusive innovation. India and other developing nations must formulate proactive, adaptable, and ethical AI frameworks while enhancing skills and infrastructure. Global cooperation, knowledge sharing, and responsible governance are key to building a future where AI uplifts humanity and narrows inequalities rather than deepening them.

INDIA'S DEFENCE INNOVATION: POWERING SELF-RELIANCE WITH LASER WEAPONS



WHY IN THE NEWS?

India made headlines with the successful demonstration of the indigenously developed Mk-II(A) Laser-Directed Energy Weapon (DEW) system by the Defence Research and Development Organisation (DRDO). Conducted at the National Open Air Range in Kurnool, Andhra Pradesh, the trial showcased India's advanced capabilities in non-kinetic warfare by neutralising multiple aerial threats, including fixed-wing drones and surveillance equipment, with lightning-speed precision. With this achievement, India joins an elite group of nations possessing high-power Laser-DEW systems, marking a significant milestone in its pursuit of self-reliance under the Atmanirbhar Bharat mission. The development strengthens India's defence preparedness in the era of modern asymmetric and non-contact warfare.

WHAT IS LASER?

A laser is a device that emits light through a process called stimulated emission of radiation, producing a highly focused and coherent beam of light. The term "laser" is an acronym for Light Amplification by Stimulated Emission of Radiation. Lasers generate powerful, focused beams that are monochromatic (single-wavelength), collimated (travel in a parallel direction), and coherent (waves in phase).

WHAT IS LASER WEAPON TECHNOLOGY?

General Atomics Electromagnetic Systems (GA-EMS) is at the forefront of developing next-generation electric weapon systems, especially High Energy Laser (HEL) systems, designed for multi-domain deployment – land, air, and sea.

High Energy Laser (HEL) Weapon System

The advanced solid-state HEL weapon system provides proven laser technologies to enable the detection and defeat of an expanding range of targets, including unmanned aerial systems (UAS), missile threats, ISR systems, rockets, artillery, and

mortars. The HEL's modular and scalable nature allows simple power scaling to increase the total laser output power. The system's large optical aperture and efficient cooling offer significant reductions in size and weight to suit air, land and sea-based platforms.

1. 25 kW-class laser scalable to 300 kw and larger
2. Pulsed and continuous wave systems
3. Proven technology for high-energy solid-state laser systems
4. Designed for all warfighting environments
5. Extended target engagement ranges

ADAPTIVE OPTICS

When a laser beam is propagated a long distance through the atmosphere, it becomes distorted. For high-energy laser weapons, this reduces the effective kill range of the weapon. Backed with cutting-edge advancements in Adaptive Optics technology, GA-EMS mitigates these distortions, making the HEL a more effective end-to-end weapon system.

1. HEL beam quality enhancement and atmospheric turbulence mitigation
2. Phased array beam control and distributed aperture tracking
3. Coherent imaging for target identification and characterisation
4. Optical weather modelling and forecasting

KEY FEATURES OF LASER

1. **High Intensity:** Lasers deliver extremely concentrated energy in a small area. Enabled by stimulated emission, where light photons are amplified within the laser cavity. Useful in metal cutting, surgery, and weapon systems.
2. **Directionality (Collimation):** Laser beams are highly collimated—they travel as a narrow, focused beam with minimal divergence. This allows the beam to stay sharp even over long distances. Crucial in targeting systems, laser communication, and astronomy.
3. **Coherence:** Laser light is coherent, meaning all light waves are in phase (aligned peaks and troughs). Enables interference patterns, precise holography, and optical measurements.

4. **Monochromaticity:** Lasers emit light of a single wavelength (colour). This narrow spectral purity makes lasers ideal for spectroscopy, fibre-optic communication, and barcode scanning.
5. **Precision and Focusability:** Due to coherence and collimation, laser beams can be focused to a pinpoint for delicate operations. Widely used in eye surgeries, microelectronics, and material processing.
6. **Non-Contact Operation:** Lasers do not require physical contact with the target. Ideal for remote sensing, laser engraving, cutting, and defence applications like Directed Energy Weapons (DEWS).
7. **Energy Efficiency and Reusability:** Many modern lasers are energy-efficient and require minimal maintenance. Solid-state and semiconductor lasers are increasingly used for their durability and compactness.
8. **Wide Range of Applications:** Medicine (surgery, diagnostics), Defence (targeting, counter-drone systems), Telecommunications (fibre optics), Manufacturing (cutting, welding, 3d printing), Research and Space Technology

SIGNIFICANCE OF LASER WEAPON TECHNOLOGY

1. **Precision and Accuracy:** Lasers are renowned for their ability to focus on specific targets with high accuracy, minimising collateral damage, especially in urban or sensitive areas.
2. **Speed and Response Time:** Laser weapons can engage targets at the speed of light, making them effective against fast-moving threats like drones and missiles, according to HowStuffWorks.
3. **Countering Emerging Threats:** Laser weapons are particularly valuable in countering threats like swarm drones and other emerging aerial and ground-based hazards, according to Idrw.org.
4. **Cost-Effectiveness:** Lasers offer a potentially more cost-effective alternative to traditional munitions, as they can be fired repeatedly without needing to be reloaded, according to EurAsian Times.
5. **Reduced Environmental Impact:** Compared to traditional weapons, laser weapons produce

less pollution and have a smaller environmental footprint.

6. **Versatility:** Laser systems can be adapted for various platforms, including ground-based, shipborne, and even aircraft-based applications, according to the Times of India.
7. **Enhanced Military Readiness:** The ability to rapidly deploy and utilise laser weapons across different domains strengthens military readiness and enhances defence capabilities, according to EurAsian Times.
8. **Stealth Advantage:** Lasers are stealthy, as their presence is only revealed through target damage, making them useful in certain tactical scenarios.

CONCLUSION

The successful demonstration of the indigenously developed Mk-II(A) Laser-Directed Energy Weapon (DEW) system by DRDO marks a pivotal moment in India's defence advancement and self-reliance goals. Laser weapon technology, with its high precision, rapid response, and cost-effectiveness, represents the future of modern warfare, especially in dealing with asymmetric and non-contact threats like drones, missiles, and surveillance systems. As India joins the elite group of nations possessing high-power laser systems, it not only boosts its strategic deterrence but also showcases the country's growing prowess in cutting-edge defence R&D. Moving forward, the deployment of laser-based systems across land, sea, air, and space platforms will play a vital role in shaping India's 21st-century security architecture.

6G Network: The Next Frontier in Wireless Communication



WHY IN THE NEWS?

India is making significant strides in the development of 6G technology. The government has released the "Bharat 6G Vision" document, aiming to position India as a leading contributor in the design, development, and deployment of 6G technologies by 2030. This initiative is part of a broader effort

to enhance digital infrastructure and ensure technological leadership in the next generation of wireless communication. Additionally, the launch of over 100 5G labs across the country is expected to foster innovation and prepare the groundwork for a seamless transition to 6G. With global competitors accelerating their 6G roadmaps, India's early push is both strategic and timely.



WHAT IS 6G?

6G, or sixth-generation wireless technology, is the successor to 5G. It is expected to offer significantly higher data rates, ultra-low latency, and enhanced reliability. 6G aims to integrate advanced technologies such as artificial intelligence (AI), machine learning, and the Internet of Things (IoT) to provide seamless connectivity and support a wide range of applications, from immersive virtual reality experiences to autonomous vehicles. It will leverage higher frequency bands, including terahertz waves, to achieve these performance benchmarks. The technology is also expected to enable real-time digital interactions, paving the way for smart cities, precision healthcare, and advanced robotics.

COMPARISON: 4G VS. 5G VS. 6G

Feature	4G LTE	5G NR	6G (Projected)
Peak Data Rate	1 Gbps	10 Gbps	1 Tbps
Latency	~50 ms	~1 ms	~1 μ s
Bandwidth	Up to 20 MHz	Up to 100 MHz	Up to 1 GHz
Frequency Bands	2-8 GHz	24-86 GHz	95 GHz–3 THz
Use Cases	Mobile internet	IoT, AR/VR	AI, holography
Deployment Year	2010s	2020s	2030s

FEATURES OF 6G

- Ultra-High Data Rates:** Expected to reach up to 1 Tbps, enabling faster downloads and real-time data processing. This will allow for instantaneous communication across multiple platforms simultaneously. For example, high-resolution 3D holograms could be transmitted in real-time without lag.
- Ultra-Low Latency:** Targeting latency as low as 1 microsecond, facilitating instantaneous communication. This will benefit time-sensitive applications like remote surgeries and industrial automation. Gaming and VR/AR applications will become highly immersive and seamless.
- Enhanced Connectivity:** Supporting a massive number of connected devices per square kilometer, crucial for IoT expansion. 6G networks will accommodate the exponential growth of smart devices in homes and industries. For instance, smart cities could manage traffic, pollution, and energy use in real-time.
- Advanced AI Integration:** Incorporating AI for network optimization, predictive maintenance, and efficient resource management. AI will play a key role in automating and personalizing user experiences. AI-based decision-making in network management could reduce human intervention and errors.
- Energy Efficiency:** Focusing on sustainable and energy-efficient network operations. Green technologies and power-efficient hardware will be at the core of 6G development. Dynamic power control and energy harvesting methods are being explored to minimize carbon footprint.

The evolution from 4G to 6G represents a leap not only in speed but also in network intelligence and capability. 6G is designed to support future innovations that current networks are not equipped to handle

GOVERNMENT POLICIES AND GLOBAL INITIATIVE

1. **Bharat 6G Vision:** A strategic roadmap to develop and deploy 6G technologies by 2030, focusing on affordability, sustainability, and ubiquity. This vision also includes enabling indigenous technology and promoting domestic manufacturing.
2. **6G Testbeds:** Establishment of advanced research facilities to foster innovation in 6G technologies. These testbeds aim to simulate real-world conditions and accelerate product development.
3. **Collaborations:** Partnerships with global research institutions and industry leaders to align with international standards. These alliances will ensure that India's 6G advancements are in harmony with global frameworks.
4. **National 6G Mission:** Launched to spearhead the technological roadmap and provide funding for 6G R&D. It brings together academia, startups, and major industry players to create an ecosystem of innovation.
5. **PM-WANI Scheme Integration:** Exploring how public Wi-Fi under PM-WANI can be upgraded for future 6G connectivity in rural and underserved areas, thereby ensuring inclusive growth.
6. **6G Academic Support Programs:** Indian Institutes of Technology (IITs) and other research bodies are receiving increased grants to conduct applied research in AI, edge computing, and terahertz communications.
7. **International Forums and Leadership:** India is actively participating in international forums like ITU and 6G Global Summit to ensure its interests are represented in the global 6G standards-making process.

GLOBAL EFFORTS:

1. **United States:** Investing in research and development to maintain technological leadership in 6G. Federal programs are supporting innovation hubs and public-private research partnerships. The Next G Alliance, a coalition of private and academic entities, is shaping the future of North American 6G roadmap.
2. **China:** Conducting extensive research and trials to pioneer 6G technologies. It aims to deploy 6G by the early 2030s and dominate the global telecom market. China launched the world's first 6G test satellite in 2020 and has been leading patent applications in 6G.
3. **European Union:** Initiating projects like Hexa-X to explore 6G use cases and develop a unified framework. EU efforts emphasize sustainability and interoperability across member nations. Horizon Europe, the EU's key funding program for research, supports cross-border 6G collaborations.
4. **South Korea:** Announced a 6G roadmap targeting commercial launch by 2028, focusing on smart cities and digital twins. Korea is investing over \$190 million in 6G R&D and has begun working on core technologies like terahertz antennas.
5. **Japan:** Promoting 6G development through initiatives led by NICT and major telecom firms. Japan's "Beyond 5G" strategy includes \$450 million funding for next-gen wireless infrastructure and global partnerships.
6. **International Collaboration:** Multiple countries are aligning efforts via global forums like ITU and 6G Flagship to ensure harmonization of standards and accelerate innovation across borders.

CHALLENGES IN IMPLEMENTATION

1. **Spectrum Allocation:** Identifying and regulating new frequency bands, especially in the terahertz range, for 6G deployment. These frequencies require new hardware and regulatory frameworks.

2. **Infrastructure Development:** Building a dense network of base stations and integrating advanced technologies into existing systems. It also demands heavy investments in fiber-optic and cloud infrastructure.
3. **Energy Consumption:** Ensuring energy-efficient operations to support the massive data processing requirements. The use of renewable energy and energy-harvesting technologies will be crucial.
4. **Security and Privacy:** Addressing potential vulnerabilities and ensuring robust cybersecurity measures. With increased connectivity comes a higher risk of cyber threats and data breaches.
5. **Standardization:** Achieving global consensus on 6G standards to ensure interoperability and seamless integration. A unified standard is essential for global adoption and mass deployment.
3. **Public-Private Partnerships:** Encouraging collaboration between government bodies, academia, and industry stakeholders to drive innovation. These partnerships can reduce the financial burden and expedite technological readiness. Examples include government-backed consortiums for 6G innovation and shared infrastructure ventures among telecom providers. PPPs can also be used to extend coverage to remote areas and ensure inclusive technology access.
4. **Skill Development:** Fostering a skilled workforce equipped to handle the complexities of 6G technologies. Educational institutions need to update curricula to include 6G-related competencies. National-level reskilling programs and global fellowships can be launched to ensure talent availability and global exposure. Online learning platforms could also play a significant role in democratizing 6G education. Public coding bootcamps, industry mentorships, and certification programs can further bridge the talent gap.

WAY FORWARD

1. **Research and Development:** Continued investment in R&D to innovate and overcome technical challenges. This includes funding for academia, startups, and incubators working on futuristic tech. There is also a need for establishing innovation hubs focused specifically on 6G applications. Long-term funding cycles and international academic exchanges can enhance the scope and quality of research. Stronger IP frameworks and cross-border tech transfer agreements can further stimulate innovation.
2. **Policy Framework:** Developing comprehensive policies to facilitate spectrum management, infrastructure development, and international collaboration. Clear and adaptive policies will streamline implementation. Incentivizing domestic manufacturing of 6G components and creating regulatory sandboxes can also support agile policy testing and iteration. Encouraging open-source collaboration and aligning national standards with international norms can prevent fragmentation.
5. **International Collaboration and Standardization:** Strengthening bilateral and multilateral collaborations with countries leading in 6G R&D. Participation in global 6G forums ensures India's voice in shaping standards and policies. Developing open standards in coordination with international bodies like ITU and ETSI can help ensure interoperability. Hosting international 6G summits and joint research programs can enhance global presence and influence.
6. **Inclusion and Accessibility:** Ensuring that the benefits of 6G reach all segments of society. Developing low-cost 6G-enabled devices and services for underserved regions is essential. Focus on bridging the digital divide through subsidized infrastructure and digital literacy programs. Integrating 6G in public service delivery, such as education and healthcare, can promote inclusive growth.

CONCLUSION

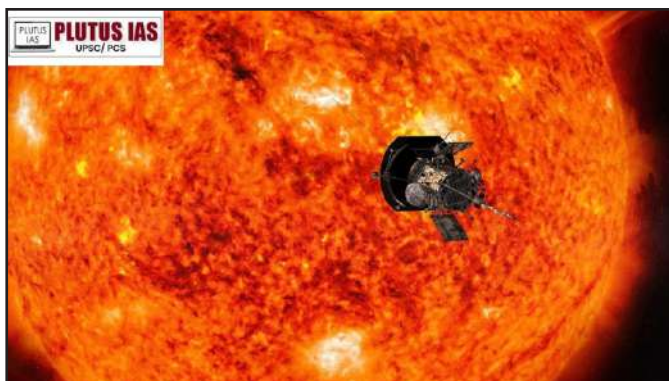
6G represents a significant leap in wireless communication, promising unprecedented speed, connectivity, and integration of advanced technologies. While challenges exist, strategic planning, investment in research, and international collaboration can pave the way for successful implementation. India's proactive approach through the Bharat 6G Vision positions it to be a key player in shaping the future of global telecommunications. As nations race toward 6G, inclusive and equitable deployment will be key to ensuring technology benefits reach every corner of society.

PARKER SOLAR MISSION (PSM): TOUCHING THE SUN



WHY IN THE NEWS?

NASA's Parker Solar Probe made another record-breaking close approach to the Sun on March 22, 2025, coming within 6 million km of its surface. This mission marks a significant milestone in solar exploration, as the probe continues its journey through the Sun's corona, collecting crucial data on solar wind, magnetic fields, and coronal mass ejections. The insights aim to deepen our understanding of space weather and the Sun-Earth relationship, with implications for satellite safety, communication systems, and scientific discovery.



WHAT IS THE PARKER SOLAR MISSION (PSM)

The Parker Solar Mission (PSM) is NASA's ground-breaking attempt to study the sun up close — so close, in fact, that it's often called the mission to "touch the sun." Named after physicist Eugene Park-

er, who first theorized the solar wind, the mission is carried out using the Parker Solar Probe — a sophisticated spacecraft built to withstand the harshest conditions in our solar system. Launched in August 2018 aboard a Delta IV Heavy rocket from Cape Canaveral, the probe aims to fly closer to the sun than any spacecraft in history.

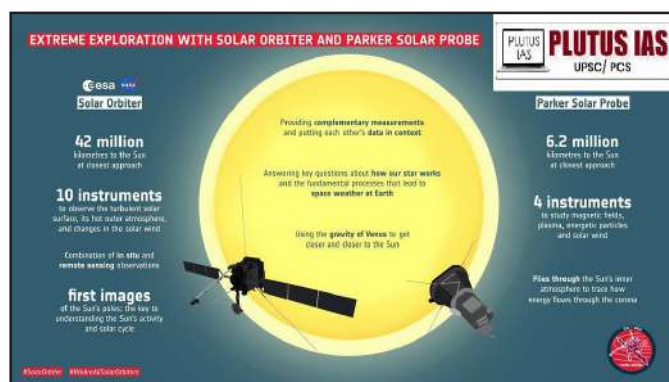
Its primary goal is to explore the sun's outer atmosphere — the solar corona — and gather crucial data that can solve long-standing mysteries of solar physics. The mission is a marvel of engineering and has already revolutionized our understanding of the sun.

FACTUAL DETAILS ABOUT THE PSM

- 1. Launch Date and Location:** The Parker Solar Probe was launched on August 12, 2018, from Cape Canaveral Air Force Station in Florida aboard a Delta IV Heavy rocket.
 - 2. Mission Speed:** Once in space, the spacecraft reached a record-breaking speed of 692,000 km/h, making it the fastest human-made object in history.
 - 3. Distance from the Sun:** On December 24, 2024, it came within 6.1 million km of the Sun's surface. By March 22, 2025, it made another attempt to get even closer, aiming for around 6 million km.
 - 4. Flight Path and Gravity Assist:** The spacecraft uses gravity assists from Venus and Earth to gradually spiral closer to the Sun. The original Jupiter flyby idea was dropped due to distance concerns.
 - 5. Thermal Protection:** The probe is equipped with an 8-foot-wide, 4.5-inch-thick carbon-carbon composite heat shield, capable of withstanding temperatures up to 1,370°C, while keeping the internal instruments at a safe 29°C.
 - 6. Structure and Materials:** The heat shield includes a carbon composite foam core and is coated with white ceramic paint to reflect solar radiation. A separate Faraday cup made from a molybdenum alloy operates outside the shield and endures extreme heat to study the solar wind.
- Instruments Onboard:**
 - FIELDS (Focusing Optics X-ray Solar Imager):** Measures electric and

magnetic fields in the Sun's corona. This helps scientists understand how energy and heat move through the solar atmosphere and drive solar eruptions.

- **ISOIS(Integrated Science Investigation of the Sun):** Detects energetic particles that form solar storms. It provides insights into the acceleration and transport of these particles across the solar system.
- **WISPR (Wide-Field Imager for Solar Probe):** Captures images of solar phenomena like coronal mass ejections and the solar wind. It offers the first-ever direct views of the Sun's outer atmosphere and helps track solar material as it moves outward.
- **SWEAP (Solar Wind Electrons Alphas and Protons):** Records solar wind properties such as speed, density, and temperature. This data is crucial to understanding how the solar wind is heated and accelerated.
- **Faraday Cup:** Measures ion and electron density directly in the solar wind. It operates by collecting charged particles and analyzing their properties to map the solar wind's structure.
- **Duration and Orbits:** Over the course of its mission, the probe will complete 24 orbits of the Sun and spend more than 2,000 hours flying through the corona.
- 8. **Important Discoveries:** Discovery of dust-free zones near the Sun, defying previous assumptions. Observation of magnetic switchbacks in the solar wind: sudden reversals in magnetic field direction. Data supporting the theory that Alfvén waves contribute to the unusually high temperature of the solar corona.



SIGNIFICANCE OF THE PARKER SOLAR MISSION

1. **Understanding Solar Storms:** Parker helps identify the causes, composition, and structure of solar storms, which can severely affect satellites, electric grids, aviation communication, and GPS systems on Earth.
2. **Probing the Solar Wind:** The mission provides the first-ever direct evidence of phenomena like magnetic switchbacks and Alfvén waves, which could explain why the corona is mysteriously hotter than the sun's surface.
3. **Studying Coronal Mass Ejections (CMEs):** Parker Solar Probe has advanced our understanding of CMEs : massive eruptions of plasma and magnetic field from the sun's corona that can carry billions of tons of solar material into space. These CMEs can collide with Earth's magnetosphere, disrupting satellite systems, communications, GPS, and power grids. Understanding their origin and evolution is key to building better early-warning systems for geomagnetic storms.
4. **Space Weather Prediction:** Data from PSM enhances our ability to forecast space weather events, which is vital for astronaut safety, protection of electronic infrastructure, and ensuring uninterrupted satellite operations.
5. **Dust-Free Zones Near the Sun:** Parker discovered regions near the sun that are unexpectedly devoid of interplanetary dust, revising previous assumptions about the solar system's inner environment and its evolution.
6. **Historic Alfvén Surface Crossing:** Perhaps most thrilling is the April 2021 event when the probe crossed the Alfvén surface, officially entering the sun's atmosphere : a historic first in solar exploration.
7. **Extreme Engineering Marvel:** The mission showcases cutting-edge thermal protection systems, including a carbon-carbon heat shield capable of withstanding 1,370°C, and innovative cooling mechanisms that maintain instrument

function just meters away from the sun's intense radiation.

8. **Decoding the Sun's Magnetic Field:** Parker's measurements of the sun's electric and magnetic fields provide key insights into the star's complex magnetic topology, helping to understand solar cycles and sunspot activity.
9. **Long-Duration Corona Exposure:** The probe is set to spend over 2,000 hours flying through the sun's corona, enabling unprecedented long-term observations of high-energy particles and plasma behaviors.
10. **International Collaboration and Inspiration:** The mission serves as a global example of scientific ambition and engineering excellence, inspiring similar missions like ISRO's Aditya-L1 to probe solar mysteries from different vantage points.

CONCLUSION

The Parker Solar Mission represents humanity's boldest step yet towards unraveling the mysteries of our star. By flying into the sun's corona and directly sampling its environment, the Parker Solar Probe has opened new frontiers in astrophysics and space science. Its discoveries not only deepen our understanding of the sun's behavior but also pave the way for better protection of Earth's technological infrastructure. As the probe continues its journey with upcoming flybys — like the one on March 22, 2025, and again in June — the world waits eagerly for the insights it will bring from our blazing celestial neighbor.

PRELIMS QUESTIONS

1. With reference to the Nag Missile System (NA-MIS), consider the following statements:

1. It is an anti-tank guided missile (ATGM) developed by DRDO under the Integrated Guided Missile Development Program (IGMDP).
2. The Nag missile uses a semi-active laser-homing guidance system.

Which of the statements given above is/are correct?

- A. 1 only

- B. 2 only

- C. Both 1 and 2

- D. Neither 1 nor 2

2. Consider the following statements regarding Space Debris:

1. Space debris consists only of defunct satellites.
2. The Kessler Syndrome refers to the increasing number of new satellites launched into orbit.
3. India's NETRA project aims to track space debris and protect Indian satellites.

Which of the statements given above is/are correct?

- A. 1 and 2 only

- B. 2 and 3 only

- C. 3 only

- D. 1, 2, and 3

3. With reference to CP violation in particle physics, consider the following statements:

1. CP violation has been observed in both mesons and baryons.
2. The LHCb experiment at CERN recently confirmed CP violation in lambda-b baryons.
3. CP violation explains the complete matter-antimatter imbalance in the universe.

How many of the above-given statements are correct?

- A. Only one

- B. Only two

- C. All three

- D. None

4. With reference to Artificial Intelligence (AI), consider the following statements:

1. Narrow AI systems are capable of performing multiple unrelated tasks with human-like intelligence.
2. The OECD Principles on AI promote the use of AI that is innovative and trustworthy while respecting human rights.
3. India is a founding member of the Global Partnership on Artificial Intelligence (GPAI).

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

5. With reference to Laser-Directed Energy Weapons (DEWs), consider the following statements:

1. Laser-DEWS are kinetic weapons that destroy targets through physical impact.
2. They use monochromatic, coherent, and collimated beams of light to neutralise threats.
3. India recently tested an indigenous Laser-DEW system with anti-drone capabilities.

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

6. The “Bharat 6G Vision” document primarily aims to:

- A. Launch commercial 6G services by 2025
- B. Promote foreign telecom investment
- C. Position India as a leader in 6G technology by 2030
- D. Subsidize 5G smartphones

7. Consider the following statements regarding NASA’s Parker Solar Probe (PSP):

1. It is the first spacecraft to enter the Sun’s corona by crossing the Alfvén surface.
2. It uses gravitational assist from Earth and Venus to get closer to the Sun.
3. The spacecraft is powered solely by nuclear energy to withstand extreme solar heat.
4. The Parker Solar Probe was launched aboard a Falcon 9 rocket.

Which of the statements given above is/are correct?

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

ANSWER

1. A	2. C	3. B	4. B	5. B	6. C	7. A
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MAINS QUESTIONS

1. Discuss the significance of the Nag Missile System (NAMIS) in strengthening India’s defence capabilities.

(250 words, 15 marks)

2. Analyze the growing challenge of space debris and its implications for global space security. Discuss India’s initiatives in space debris management and suggest strategies for effective mitigation.

(250 words, 15 marks)

3. Discuss the significance of the recent discovery of CP violation in baryons. How does this finding contribute to solving the mystery of matter-antimatter asymmetry in the universe?

(250 words, 15marks)

4. Discuss the significance of AI for India, outline the challenges involved in its adoption, and suggest how national and international efforts can promote inclusive and responsible AI governance.

(250 words, 15marks)

5. Discuss the significance of laser weapon technology for India’s defence preparedness, along with its advantages and challenges.

(250 words, 15 marks)

6. Discuss the potential of 6G technology in transforming India’s digital infrastructure. In your view, what should be the key focus areas in India’s roadmap toward 6G deployment?

(250 words, 15marks)

7. Analyze how the Parker Solar Probe has advanced our knowledge of solar wind, magnetic fields, and coronal heating. What role does it play in space weather prediction?

(250 words, 15marks)

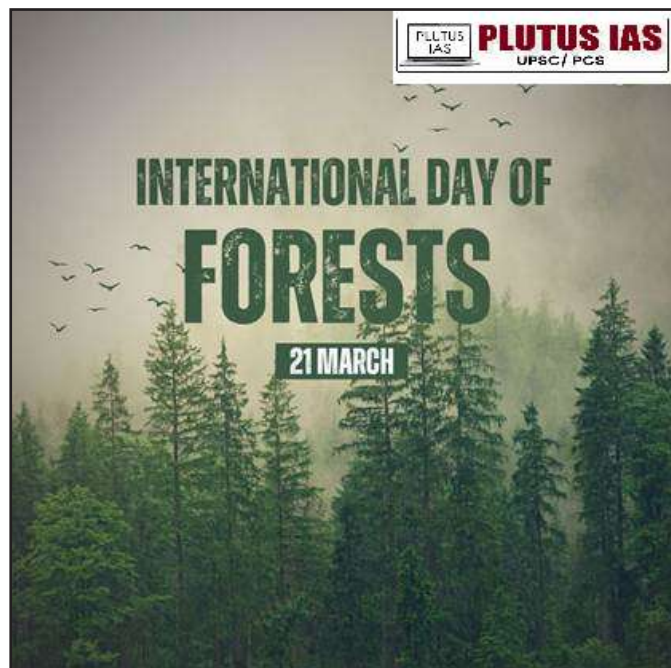


**INDIA'S HOLISTIC STRATEGY
INTEGRATES FORESTS,
FOOD, AND LIVELIHOODS**



WHY IN THE NEWS?

Forests are the lifelines of our planet, providing oxygen, food, medicine, and livelihoods to millions. Beyond their ecological significance, forests are pillars of global food security, offering essential resources such as fruits, seeds, roots, and wild meat, which support indigenous and rural communities. Every year on March 21, the world celebrates the International Day of Forests to celebrate all types of forests, recognize the importance of trees and forests, and take action to protect them.



WHAT IS INTERNATIONAL FOREST DAY?

International Day of Forests, observed on March 21 each year, is a global event established by the United Nations General Assembly (UNGA) in 2012 to raise awareness about the importance of forests and trees. It highlights the vital role forests play in maintaining ecological balance, supporting biodiversity, and contributing to human well-being. The day promotes actions such as tree planting, conservation efforts, and sustainable forest management to protect these crucial ecosystems. Various organizations, governments, and individuals worldwide participate in activities and discussions that emphasize the need for forest preservation and restoration to combat climate change and ensure a greener future.

GOVT POLICIES FOR FOREST PROTECTION IN INDIA



FOREST STATISTICS OF INDIA

Category	Details
Total Forest & Tree Cover	8,27,357 sq km (25.17% of India's area)
Forest Cover	7,15,343 sq km (21.76% of total area)
Tree Cover	1,12,014 sq km (3.41% of total area)
Increase in Green Cover (Since 2021)	1,445 sq km
Forest Cover Increase	156 sq km
Tree Cover Increase	1,289 sq km
Top States (Forest & Tree Cover Increase)	Chhattisgarh (684 sq km), Uttar Pradesh (559 sq km), Odisha (559 sq km), Rajasthan (394 sq km)
Top States (Forest Cover Increase)	Mizoram (242 sq km), Gujarat (180 sq km), Odisha (152 sq km)
Largest Forest & Tree Cover (Area-wise)	1. Madhya Pradesh (85,724 sq km) 2. Arunachal Pradesh (67,083 sq km) 3. Maharashtra (65,383 sq km)
Largest Forest Cover (Only)	1. Madhya Pradesh (77,073 sq km) 2. Arunachal Pradesh (65,882 sq km) 3. Chhattisgarh (55,812 sq km)
Highest Forest Cover (Percentage of State's Area)	1. Lakshadweep (91.33%) 2. Mizoram (85.34%) 3. Andaman & Nicobar Islands (81.62%)



Ministry of Information and Broadcasting
Government of India



PLUTUS IAS
UPSC/PCS

Objectives of National Agroforestry Scheme

- ▶ Expanding tree plantations alongside crops to improve farm productivity and income.
- ▶ Ensuring the availability of Quality Planting Material (QPM) such as improved seeds, seedlings, clones, and hybrid varieties.
- ▶ Popularizing agroforestry models suited for different regions and land-use conditions.
- ▶ Creating a database and knowledge system for research and farmer guidance.
- ▶ Strengthening market linkages for agroforestry products like timber, biofuels, fiber, silk, and medicinal plants.
- ▶ Promoting value addition and processing to enhance profitability.
- ▶ Using modern technology such as geo-tagging, AI, and satellite imagery for monitoring plantations.



FOREST DEGRADATION IN INDIA

- Deforestation & Land Use Change:** Large-scale clearing of forests for agriculture, infrastructure, and urbanization reduces forest cover and biodiversity.
- Illegal Logging & Timber Extraction:** Unregulated tree felling for timber, fuelwood, and commercial purposes leads to habitat destruction.
- Encroachment & Habitat Fragmentation:** Human settlements, farming, and industrial expansion result in fragmented forests, impacting wildlife movement and ecosystem balance.
- Forest Fires:** Both natural and human-induced fires destroy vast forest areas, reducing biodiversity and increasing carbon emissions.
- Mining & Industrial Activities:** Open-cast mining, quarrying, and industrial pollution degrade soil quality and disturb forest ecosystems.
- Climate Change Impacts:** Rising temperatures, erratic rainfall, and extreme weather events stress forests, leading to tree mortality and biodiversity loss.

7. **Invasive Species:** Non-native plant species, such as Lantana and Parthenium, outcompete native flora, altering forest composition.
8. **Overgrazing & Unsustainable Agriculture:** Livestock overgrazing and shifting cultivation practices lead to soil erosion and loss of vegetation.

WAY FORWARD TO PROMOTE FOREST PROTECTION

1. **Strengthen Afforestation & Reforestation Initiatives:** Expand programs like the Green India Mission (GIM) and Compensatory Afforestation Fund Management and Planning Authority (CAMPA).
2. **Enhance Legal and Policy Framework:** Strengthen enforcement of the Forest Conservation Act, 1980, and Wildlife Protection Act, 1972. Implement stricter penalties for illegal deforestation and encroachments.
3. **Sustainable Forest Management (SFM):** Adopt community-based Joint Forest Management (JFM) programs. Encourage eco-tourism and non-timber forest product (NTFP) industries for sustainable livelihoods.
4. **Community Participation & Indigenous Knowledge:** Involve tribal and forest-dwelling communities in conservation efforts. Recognize traditional ecological knowledge for forest protection. Strengthen the implementation of the Forest Rights Act of 2006 to balance conservation and community rights.
5. **Strict Control on Forest Degradation & Land Use Change:** Implement policies to curb deforestation due to urbanization and mining. Promote land reclamation techniques for degraded forests. Enforce sustainable infrastructure development with minimal ecological damage.
6. **Forest Fire Prevention & Control Measures:** Use early warning systems and satellite monitoring to detect forest fires. Train local communities for fire prevention and control strategies. Establish fire lines and deploy fire-resistant species in vulnerable areas.
7. **Restoring Degraded Lands & Wetlands:** Strengthen programs for watershed management and soil conservation. Restore

wetlands, mangroves, and riparian forests for climate resilience.

8. **Promote Agroforestry & Sustainable Agriculture:** Scale up the National Agroforestry Policy to integrate trees into farmlands. Support farmers with incentives for agroforestry-based practices.

CONCLUSION

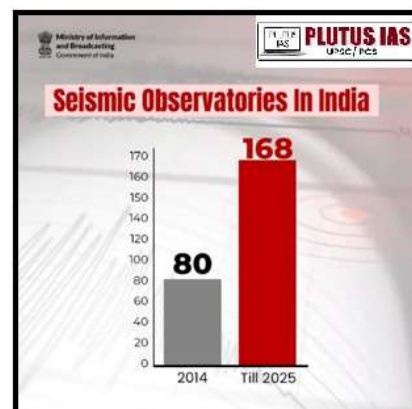
Forest protection is critical for maintaining ecological balance, combating climate change, and sustaining livelihoods. By integrating scientific innovations, legal frameworks, and sustainable practices, India can enhance its forest conservation efforts while ensuring economic and ecological benefits. Multi-stakeholder collaboration, strict enforcement of policies, and community-driven approaches will be essential to safeguarding India's forests for future generations.

**MAKING INDIA MORE
DISASTER-RESILIENT**



WHY IN THE NEWS?

India has experienced several earthquake tremors this past year, highlighting the need for better disaster preparedness. Earthquakes occur when stress builds up in the Earth's crust. The crust is made of large plates that slowly move and these movements cause earthquakes. When an earthquake hits a populated area, it can cause significant damage. Approximately 59% of India is vulnerable to earthquakes, and the Bureau of Indian Standards (BIS) has classified the country into four seismic zones based on earthquake risk. Zone V is the most active, including regions like the Himalayas, while Zone II is the least affected. Over the years, India has experienced several devastating earthquakes.



WHAT IS AN EARTHQUAKE?

An earthquake is a sudden shaking of the ground caused by the movement of tectonic plates beneath the Earth's surface. This seismic activity occurs due to the release of energy stored in the Earth's crust. The energy is generated by the movement along faults, which are fractures in the Earth's crust where two blocks of land have moved past each other. Earthquakes vary in intensity and magnitude and are measured using the Richter scale or the more modern Moment Magnitude Scale (Mw). The epicenter is the point on the Earth's surface directly above where the quake originates, while the focus is the point within the Earth where the seismic energy is released.

EARTHQUAKE STATISTICS

India is one of the most seismically active countries in the world due to its geographical location on the Indian tectonic plate. Earthquakes are frequent, ranging from low to high intensity, and have been a cause of considerable destruction in the past. According to the National Center for Seismology (NCS), several

KEY STATISTICS HIGHLIGHT THE SEISMIC NATURE OF INDIA:

1. **Seismic Zones:** India is divided into four seismic zones – Zone II, III, IV, and V – based on the intensity and frequency of earthquakes. Zone V is the most seismically active region and includes areas like northeastern India, parts of the Himalayas, and Gujarat, while Zone II represents regions with relatively low seismic activity.
2. **Vulnerability of Landmass:** Approximately 59% of India's total land area is prone to moderate to severe seismic activity, placing millions of people at risk.
3. **Urban Vulnerability:** Urban centers in India, particularly those experiencing rapid, unplanned urbanization, are highly vulnerable due to a lack of earthquake-resistant infrastructure and adherence to building codes. Cities like Delhi, Guwahati, and Srinagar face high seismic risks due to their location in or near high-risk zones.

These statistics emphasize the urgent need for preparedness, strict enforcement of seismic building codes, retrofitting of older structures, and community-level awareness to mitigate the risks associated with earthquakes.

MAJOR EARTHQUAKES IN INDIA

India has experienced several devastating earthquakes over the years, which have caused significant loss of life, damage to infrastructure, and displacement. seismic activity has continued to be a major concern. These disasters emphasize the urgent need for stronger earthquake resilience and preparedness, particularly in high-risk zones. Below are some of the most notable earthquakes:

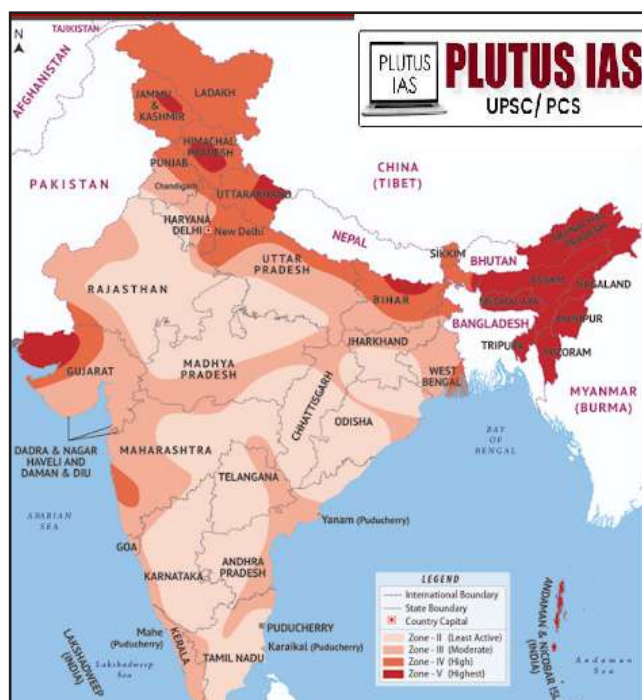
1. **Bihar-Nepal Earthquake (1934):** Magnitude 8.0 – One of the deadliest earthquakes, it caused extensive damage in northern Bihar and parts of Nepal, killing over 10,000 people. Entire towns and villages were reduced to rubble, and thousands were left homeless. It highlighted the seismic vulnerability of the Himalayan region.
2. **Latur Earthquake (1993):** Magnitude 6.4 – This earthquake struck Maharashtra's Latur and Osmanabad districts, resulting in over 9,000 deaths and widespread destruction. The damage was exacerbated by poorly constructed houses and buildings. The event raised awareness about the need for earthquake-resistant infrastructure in rural India.
3. **Bhuj Earthquake (2001):** Magnitude 7.7 – One of the most devastating quakes in recent history, it claimed over 20,000 lives, left more than 150,000 people injured, and destroyed homes, schools, hospitals, and roads in Gujarat. The Bhuj earthquake brought to light the seismic vulnerability of western India and led to significant policy changes in disaster management.
4. **Kashmir Earthquake (2005):** Magnitude 7.6 – This earthquake affected northern India and Pakistan-administered Kashmir, causing widespread destruction and claiming over 80,000 lives. The aftermath saw international relief efforts, but the challenging mountainous terrain made rescue and rehabilitation difficult.

5. **Sikkim Earthquake (2011):** Magnitude 6.9 – This earthquake impacted northeastern India, causing landslides, damage to buildings, and disruption to infrastructure. The region's rugged terrain further complicated rescue operations. Several bridges and roads were damaged, isolating remote villages.

INDIA'S EARTHQUAKE VULNERABILITY

India's vulnerability to earthquakes stems from its location at the junction of several tectonic plates. The Indian plate is continuously colliding with the Eurasian plate, leading to seismic activities. The country is divided into four seismic zones based on earthquake risk:

1. **Zone V:** Includes areas with the highest seismic risk, such as northeastern states, parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, and the Rann of Kutch in Gujarat.
2. **Zone IV:** Covers areas like Delhi, parts of Haryana, Punjab, western Uttar Pradesh, and parts of Bihar.
3. **Zone III:** Includes regions with moderate risk, such as the rest of Uttar Pradesh, Maharashtra, Odisha, and parts of southern India.
4. **Zone II:** Includes areas with the least seismic risk, mainly in central and southern India.



CAUSING FACTORS FOR EARTHQUAKE VULNERABILITY:

1. **Tectonic Plate Movements:** The collision between the Indian and Eurasian plates creates immense pressure, leading to frequent seismic activity.
2. **Fault Lines:** India's geography includes several active fault lines, such as the Himalayan Thrust Fault, the Kutch Fault, and the Narmada Fault.
3. **Unplanned Urbanization:** Rapid urban growth without adherence to building codes increases vulnerability.
4. **Soft Soil Conditions:** In certain areas, soft soil can amplify seismic waves, increasing the intensity of earthquakes.

GOVERNMENT MEASURES FOR EARTHQUAKE SAFETY:

The Indian government has taken comprehensive measures to enhance earthquake preparedness and mitigate seismic risks. These efforts aim to reduce damage, save lives, and improve public safety. Key actions include updating seismic building codes to ensure earthquake-resistant construction and retrofitting vulnerable structures like hospitals, bridges, and older buildings. Advanced early warning systems, especially in high-risk zones, offer critical seconds to evacuate or shut down essential services, minimizing casualties. Public awareness campaigns educate citizens on safety protocols, such as "Drop, Cover, and Hold."

1. **Seismic Zoning and Building Codes:** The Bureau of Indian Standards (BIS) has developed Indian Seismic Codes to ensure that buildings and infrastructure are designed to withstand seismic forces. IS 1893, IS 4326, and IS 13920 are some key codes related to earthquake-resistant construction.
2. **National Disaster Management Authority (NDMA):** The NDMA has developed guidelines for earthquake preparedness and response. It conducts regular mock drills, awareness campaigns, and training programs.

3. Earthquake Early Warning Systems (EEWS):

These advanced systems aim to provide timely alerts before seismic waves hit, helping minimize the impact of earthquakes. EEWS uses seismic sensors placed near fault lines to detect the initial low-intensity tremors (P-waves) and issue alerts before the more damaging S-waves arrive. This warning can give precious seconds or minutes to evacuate buildings, stop trains, or shut down machinery, thereby reducing casualties and infrastructure damage.

4. Urban Planning and Retrofitting: Effective urban planning plays a crucial role in reducing earthquake risks by avoiding construction in high-risk seismic zones and regulating land use. This includes promoting sustainable development practices that minimize exposure to seismic hazards. Additionally, retrofitting older buildings with earthquake-resistant technology, such as base isolators and reinforced concrete, can significantly improve their ability to withstand seismic forces. Encouraging public participation in planning and awareness programs further enhances resilience at the community level, fostering a shared responsibility for earthquake safety.

5. Public Awareness and Education: Public awareness plays a crucial role in disaster preparedness, as it empowers communities with the knowledge and skills to protect themselves during earthquakes. Educational programs focused on teaching earthquake safety measures, such as the "Drop, Cover, and Hold" technique, evacuation drills, and emergency preparedness, are vital. Increased awareness helps people respond calmly and effectively during seismic events, potentially reducing casualties and property damage. Government campaigns, NGOs, and community-based organizations must collaborate to ensure the wide dissemination of safety protocols, especially in high-risk areas, to foster a culture of resilience and preparedness across all sections of society.

LIMITATIONS ON EARTHQUAKE PREVENTABILITY

Despite extensive efforts to improve earthquake preparedness, certain inherent limitations make it challenging to completely prevent the impact of seismic events. Understanding these limitations is essential to developing more effective mitigation strategies:

1. Unpredictability of Earthquakes: One of the most significant challenges is the inability to predict the exact timing, location, and magnitude of an earthquake. While seismic monitoring can identify regions prone to earthquakes, providing real-time forecasts remains a complex task beyond current scientific capabilities.

2. Gaps in Building Code Implementation: Although seismic building codes have been established in India, their enforcement remains inconsistent, particularly in rural areas and rapidly expanding urban centers. Many structures continue to be built without adhering to safety standards, making them vulnerable to seismic shocks.

3. Resource and Financial Constraints: Retrofitting older buildings, upgrading critical infrastructure, and implementing early warning systems require substantial financial investments, which can be a constraint for resource-limited regions. Additionally, technical expertise and skilled labor may not always be readily available.

4. Challenges of Rapid Urbanization: India's rapid urbanization has led to unplanned construction, increasing the population's exposure to seismic hazards. High population density, particularly in cities located in seismic zones, complicates evacuation and rescue operations during earthquakes.

5. Geographical Vulnerability: India's tectonic positioning, with active fault lines such as the Himalayan thrust zones and regions near the Indo-Eurasian plate boundary, makes the country inherently susceptible to seismic activity. This geographical reality limits the extent to which seismic risks can be entirely mitigated through human interventions.

PROACTIVE ACTIONS TO REDUCE EARTHQUAKE IMPACTS

1. Strengthening Seismic Building Codes and Compliance

(a). Reinforcing Existing Structures: Focus on retrofitting schools, hospitals, and public buildings in seismic zones to meet updated earthquake-resistant standards

(b). Enforcing Strict Building Regulations: Regular monitoring and inspections should be conducted to ensure compliance with seismic building codes, especially in urban areas.

2. Promoting Land-Use Planning and Risk Mapping

(a). Zoning Regulations: Develop land-use plans that avoid construction in high-risk areas, such as fault lines and soft soil regions.

(b). Seismic Hazard Maps: Utilize updated seismic hazard maps to identify and prioritize vulnerable areas for focused interventions.

3. Developing Advanced Early Warning Systems

(a). Real-Time Monitoring: Invest in advanced seismic monitoring stations and sensor networks to detect early tremors and provide timely warnings.

(b). Public Alert Systems: Establish mass alert systems (SMS, sirens, radio alerts) to warn communities in real-time and facilitate evacuation.

4. Building Community Awareness and Preparedness

(a). Public Awareness Campaigns: Conduct earthquake safety drills in schools, offices, and residential neighborhoods to educate people on evacuation protocols.

(b). Training First Responders: Train local volunteers, civil defense personnel, and emergency workers in search-and-rescue operations and first aid.

5. Enhancing Disaster Response and Recovery Capacity

(a). Strengthening NDRF and SDRF: Equip National and State Disaster Response Forces with specialized tools, modern equipment, and rapid deployment capabilities for earthquake emergencies.

(b). Emergency Shelters and Relief Centers: Establish well-equipped shelters in high-risk areas to provide immediate relief and temporary housing to affected populations.

6. Promoting Research and Development (R&D):

(a). Seismic Research: Encourage research on earthquake-resistant materials, innovative construction techniques, and advanced seismic sensors.

(b). Global Collaboration: Foster partnerships with international research institutions to learn from best practices in earthquake resilience and preparedness.

Prevention Strategies

While earthquakes cannot be prevented, their impact can be minimized through prevention strategies such as:

1. Earthquake-Resistant Design: Encourage the construction of earthquake-resistant buildings using flexible materials that can absorb seismic energy.

2. Hazard Mapping: Conduct detailed seismic hazard mapping to identify high-risk areas and guide land use planning.

3. Public Awareness Campaigns: Educate people on earthquake safety measures, including evacuation routes, emergency kits, and safe behavior during quakes.

4. Strengthening Emergency Services: Enhance the capacity of emergency services, such as fire brigades, paramedics, and search-and-rescue teams, to respond quickly and effectively after an earthquake.

CONCLUSION

Building a disaster-resilient India requires a multi-pronged approach involving strict enforcement of building codes, retrofitting vulnerable infrastructure, developing early warning systems, and enhancing

community awareness and preparedness. While earthquakes cannot be prevented, proactive measures can significantly reduce their impact, saving lives and minimizing economic losses. By fostering a culture of disaster preparedness and resilience, India can better withstand the challenges posed by future earthquakes and ensure the safety and well-being of its citizens.

LANDSLIDES: NATURE'S UNPREDICTABLE FORCE



WHY IN THE NEWS?

Six people lost their lives, and three were injured after a massive tree, uprooted by heavy rains and a landslide, fell on parked vehicles near Gurudwara Manikaran Sahib on Sunday. Officials said the tree collapsed from a mountain opposite the gurudwara due to continuous rainfall. The injured were taken to Jari Hospital for treatment. Kullu SDM Vikas Shukla confirmed that emergency teams, including police and medical personnel, managed rescue efforts. Himachal Pradesh CM Sukhvinder Singh Sukhu directed authorities to provide all possible aid, while Leader of Opposition Jai Ram Thakur expressed condolences.

INDIA'S VULNERABILITY TO LANDSLIDE



WHAT IS A LANDSLIDE?

A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of “mass wasting,” which denotes any down-slope movement of soil and rock under the direct influence of gravity. The term “landslide” encompasses five modes of slope movement: falls, topples, slides, spreads, and flows. These are further subdivided by the type of geologic material (bedrock, debris, or earth). Debris flows (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types.

Category	Details
Vulnerable Land Area	12.6% of India's land (excluding snow-covered areas) is landslide-prone.
Most Affected Regions	Himalayas, Western Ghats, Northeast India, Eastern Ghats, Kerala, Sikkim, Arunachal Pradesh.
Key Reports	ISRO Landslide Atlas: Mapped 80,000 landslides in 17 states, 2 UTs . GSI Report: Confirms 12.6% of land area at risk.
Main Causes	Geological Factors: Young, unstable mountains (Himalayas, Western Ghats). Climate & Rainfall: Intense monsoons weaken slopes. Human Activities: Deforestation, unscientific road construction, mining, and farming on steep slopes. Earthquakes: Frequent seismic activity in the Himalayan region triggers landslides. Soil Erosion: Riverbank erosion makes slopes unstable.

Category	Details
Impacts	Loss of Life: High fatalities in densely populated hilly regions. Infrastructure Damage: Roads, bridges, power lines, and buildings destroyed. Economic Losses: Disrupts agriculture, tourism, and transportation. Environmental Degradation: Causes deforestation, loss of biodiversity, and landslide-induced flooding.

CAUSE OF LANDSLIDE

- 1. Heavy Rainfall & Flooding:** Excessive water saturates the soil, reducing its strength and triggering landslides, especially during monsoons.
- 2. Earthquakes & Seismic Activity:** Ground vibrations destabilize slopes, leading to rockfalls and landslides, particularly in mountainous regions.
- 3. Volcanic Eruptions:** Lava flows, ash deposits and explosions can weaken slopes, causing sudden landslides.
- 4. Snowmelt & Glacier Movement:** Rapid melting of snow and glaciers increases water infiltration, loosening soil and rock.
- 5. Soil Erosion:** Rivers, wind, and weathering gradually wear down slopes, making them more prone to collapse over time.
- 6. Deforestation:** Cutting down trees removes the root systems that hold the soil together, increasing the risk of landslides.
- 7. Unplanned Construction & Excavation:** Poorly planned buildings, roads, and tunnels disturb natural slopes, leading to instability.
- 8. Mining & Quarrying:** Blasting and excavation weaken the ground, often triggering landslides in hilly and mountainous areas.
- 9. Poor Drainage Systems:** Improper water management causes water accumulation, weakening soil strength and increasing landslide risks.

- 10. Climate Change & Extreme Weather:** Rising global temperatures lead to intense rainfall, glacier melting, and unpredictable weather patterns, making landslides more frequent and severe.

CONSEQUENCE OF LANDSLIDE

- 1. Loss of Life & Injuries:** Landslides can bury homes and villages, leading to fatalities and serious injuries.
- 2. Destruction of Property & Infrastructure:** Houses, roads, bridges, and railways can be destroyed, causing severe disruptions.
- 3. Economic Losses:** Damage to businesses, agriculture, and industries results in financial setbacks and loss of livelihoods.
- 4. Displacement & Migration:** Affected communities may be forced to relocate, leading to social and economic challenges.
- 5. Soil Erosion & Reduced Fertility:** Landslides strip away topsoil, making land unsuitable for agriculture and reducing productivity.
- 6. Loss of Vegetation & Biodiversity:** Forests and ecosystems are destroyed, leading to habitat loss and declining wildlife populations.
- 7. Water Contamination & Shortages:** Landslides can pollute water sources and disrupt natural water flow, impacting supply and quality.
- 8. Flash Floods & Landscape Changes:** Blocked rivers can create temporary lakes that may burst, causing devastating floods and altering geography.

NDMA GUIDELINE ON LANDSLIDE

Category	Key Measures	Details
Landslide Hazard, Vulnerability & Risk Assessment	Identifying High-Risk Areas	Mapping and analyzing landslide-prone zones.
	Assessing Infrastructure & Populations at Risk	Evaluating buildings, roads, and communities vulnerable to landslides.
Early Warning Systems	Continuous Monitoring	Using sensors, satellite data, and geotechnical instruments to detect ground movement.
	Timely Alerts & Data Sharing	Communicating risk data quickly to authorities and the public.
Landslide Risk Mitigation & Remediation	Land Use Planning	Restricting development in landslide-prone areas.
	Enforcing Construction Standards	Implementing safer excavation and building regulations.
	Protective Infrastructure	Installing retaining walls, rock anchors, and other stabilizing structures.
	Slope Stabilization	Improving drainage, vegetation cover, and controlled debris removal.
	Landslide Insurance & Compensation	Providing financial support to affected communities.
National Landslide Risk Management Strategy	Comprehensive Risk Reduction Plan	Integrating hazard mapping, awareness programs, capacity building, and regulations.
	NDMA Task Force	Developing national and local-level strategies for landslide management.
	Strategy Document	Covering all aspects of landslide risk reduction.
NDMA Guidelines on Landslide & Snow Avalanche Management	National Landslide Policy (2009)	Official guidelines for landslide disaster management.
	Landslide Risk Mitigation Scheme (LRMS) – 2019	Financial and technical assistance for landslide-prone states.
	LRMS Key Objectives	Focus on prevention, mitigation, early warning systems, and capacity building.

CHALLENGES TO REDUCE THE LANDSLIDE

- 1. Lack of Accurate and Comprehensive Data:** Incomplete or outdated landslide hazard maps hinder effective risk assessment and mitigation.
- 2. Unregulated Construction in Vulnerable Areas:** Rapid urbanization and infrastructure development in landslide-prone regions increase risks.
- 3. Deforestation and Environmental Degradation:** Uncontrolled deforestation weakens slopes, making them more prone to landslides.
- 4. Poor Drainage and Water Management:** Inadequate drainage systems increase soil saturation, leading to slope failures.
- 5. Limited Implementation of Early Warning Systems:** Lack of proper monitoring networks and real-time data delays warnings and response efforts.
- 6. Climate Change and Extreme Weather Events:** Intense rainfall, rising temperatures, and unpredictable weather patterns worsen landslide frequency.
- 7. Inadequate Public Awareness and Preparedness:** Communities in high-risk zones often lack knowledge of landslide risks and safety measures.
- 8. Lack of Strict Policy Enforcement:** Weak enforcement of land-use regulations and construction guidelines allows unsafe development.
- 9. Limited Financial and Technological Resources:** Insufficient funding and technology slow down landslide mitigation projects.

WAY FORWARD

- 1. Strengthen Early Warning Systems:** Implement real-time monitoring using sensors, satellite imagery, and AI-based prediction models.
- 2. Improve Land Use Planning & Regulations:** Enforce strict zoning laws to prevent construction in high-risk areas. Implement eco-friendly infrastructure development in vulnerable regions.
- 3. Enhance Slope Stabilization Measures:** Use retaining walls, vegetation cover, and proper

drainage systems to reinforce slopes. Promote bioengineering techniques for sustainable landslide prevention.

- 4. Increase Public Awareness & Community Preparedness:** Conduct education campaigns on landslide risks and safety measures. Train local communities in disaster preparedness and evacuation drills.
- 5. Leverage Technology & Research for Risk Mitigation:** Encourage research on cost-effective landslide mitigation techniques. Use drones, LiDAR, and GIS mapping for precise hazard assessment.
- 6. Implement Sustainable Environmental Practices:** Promote afforestation and soil conservation techniques to stabilize slopes. Control deforestation and unplanned mining activities to reduce environmental stress.
- 7. Strengthen National Landslide Policy & Funding:** Expand financial assistance programs like LRMS for high-risk states. Invest in disaster resilience infrastructure and emergency response teams.

CONCLUSION

Landslides pose a significant risk to lives, infrastructure, and the environment in India. While natural factors like rainfall and earthquakes contribute, human activities such as deforestation and poor urban planning exacerbate the problem. A proactive approach combining scientific research, policy enforcement, community participation, and technological advancements is essential to minimize the impact of landslides. By strengthening risk management strategies, we can build a safer and more resilient future against these disasters.

SEAWEED: A NUTRITIONAL POWER FROM THE OCEAN



WHY IN THE NEWS?

India, with its 7,500 km-long coastline, is increasingly exploring the potential of the blue economy, and seaweed farming has recently gained prominence as a sustainable and profitable livelihood option for coastal communities. The Government of India, under the Pradhan Mantri Matsya Sampada Yojana

(PMMSY), is actively promoting seaweed cultivation to boost income, employment, and marine resource utilization. With a target of producing over 11 lakh tonnes of seaweed annually by 2025, states like Tamil Nadu, Gujarat, Maharashtra, and Odisha are being developed as key hubs. Seaweed is valued globally for its applications in food, cosmetics, fertilizers, and medicine, and its rich nutrient profile makes it an emerging superfood. India aims to leverage this eco-friendly, low-input crop to become a leading player in the global seaweed economy.



WHAT IS SEAWEED?

Some seaweeds are microscopic, such as the phytoplankton that live suspended in the water column and provide the base for most marine food chains. Some are enormous, like the giant kelp that grow in abundant “forests” and tower like underwater redwoods from their roots at the bottom of the sea. Most are medium-sized, come in colours of red, green, brown, and black, and randomly wash up on beaches and shorelines just about everywhere. The vernacular “seaweed” is a bona-fide misnomer, because a weed is a plant that spreads so profusely it can harm the habitat where it takes hold. (Consider kudzu, the infamous “mile-a-minute vine” that chokes waterways throughout the U.S. Southeast). Not only are the fixed and free-floating “weeds” of the sea utterly essential to innumerable marine creatures, both as food and as habitat, but they also provide many benefits to land-dwellers, notably those of the human variety.

PROMOTING SEAWEED FARMING IN INDIA

- 1. Vast Potential:** India has a 7,500 km long coastline and a large Exclusive Economic Zone (EEZ), making it ideal for large-scale seaweed cultivation.
- 2. Eco-Friendly Farming:** Seaweed farming requires no land, freshwater, fertilizers, or pesticides, making it highly sustainable and low-cost.
- 3. Nutrient-Rich Resource:** Seaweed is rich in vitamins, minerals, amino acids, and 54 trace elements, with proven health benefits including immunity-boosting and disease prevention.
- 4. Global Industry Size:** The global seaweed industry is worth \$5.6 billion, with growing demand in food, pharmaceuticals, cosmetics, fertilizers, and biofuels.
- 5. India's Untapped Potential:** India has the capacity to produce up to 9.7 million tonnes of seaweed annually, yet currently contributes only a small share to the global market.
- 6. Employment Generation:** Seaweed farming can generate over 6 lakh jobs, especially empowering women in coastal regions through self-help groups and cooperatives.
- 7. PMMSY Support:** Under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), the government aims to scale up production to 1.12 million tonnes in 5 years.
- 8. Infrastructure Development:** The government is supporting the creation of seaweed nurseries, processing units, value chain infrastructure, and dedicated seaweed parks.
- 9. Target States:** Coastal states such as Tamil Nadu, Gujarat, Maharashtra, Odisha, and Andhra Pradesh are identified as key seaweed farming zones.
- 10. R&D and Innovation:** The National Seaweed Mission by the Department of Biotechnology focuses on technology development, commercialization, and sustainable practices to boost the sector.



GOVT INITIATIVES OF SEAWEED DEVELOPMENTS

1. First National Conference on Seaweed Cultivation (Jan 2024) in Kutch, Gujarat, promoted seaweed as a job creator, especially for fish farmers. The **Kori Creek Pilot Project** was launched to boost seaweed farming.

1. PMMSY Scheme: Aims to increase seaweed production. Since *K. alvarezii* (a common seaweed) is disease-prone, India now allows the import of new seaweed varieties through guidelines issued in **October 2024**.

1. Seaweed Clusters in Lakshadweep: Promotes collaboration among small and large businesses to improve seaweed production, processing, and exports.

1. Centre of Excellence (Mandapam, Tamil Nadu): Launched on 9th January, 2025, Centre of Excellence in Mandapam focuses on seaweed research, better farming techniques, seed banks and creating 5,000+ jobs for 20,000 farmers.

1. Coastal Aquaculture Authority Act (2023 Update): Supports eco-friendly practices like seaweed farming, simplifying rules to encourage business growth.

1. Guidelines for Import of Live Seaweeds into India: On 31st October 2024, the Department of Fisheries announced guidelines to import live seaweeds, aiming to boost seaweed farming, create jobs, and support coastal communities.

1. Seaweed Farming in Gujarat: The government promotes seaweed cultivation in the Gulf of Kutch (Kori Creek area) to boost local livelihoods.

KEY BENEFITS OF SEAWEED PRODUCTION

- 1. Sustainable Livelihoods:** Seaweed farming provides alternative and sustainable income opportunities for coastal communities, especially women and small-scale fishers.
- 2. Eco-Friendly and Climate-Resilient:** Seaweed absorbs large amounts of CO₂, helping mitigate climate change. It also purifies seawater and supports marine biodiversity by offering shelter to aquatic life.
- 3. Biostimulants in Agriculture:** Seaweed is recognized as one of the eight major biostimulants that boost plant growth, improve nutrient absorption, and enhance resistance to drought, pests, and diseases.

- 4. Regulated Under Fertilizer Control Order:** The Fertilizer (Control) Order, 1985 ensures quality control of seaweed-based biostimulants, promoting their safe and effective use in Indian agriculture.
- 5. Boosts Organic Farming:** Seaweed-based products are used as natural fertilizers and soil enhancers, aligning with government schemes like Paramparagat Krishi Vikas Yojana (PKVY) and MOVCDNER.
- 6. High Economic Returns:** Cultivation of species like *Kappaphycus alvarezii* can earn farmers up to ₹13.28 lakh per hectare per year, offering a highly profitable income source.
- 7. Boosts Export Potential:** Seaweed-based products such as biofuels, bioplastics, cosmetics, and fertilizers are in global demand, helping India earn valuable foreign exchange.
- 8. Supports Blue Economy:** Seaweed farming aligns with India's Blue Economy vision, promoting sustainable use of ocean resources for economic growth, livelihood, and ecosystem health.
- 9. Contributes to Food and Nutritional Security:** Seaweed is rich in essential nutrients and trace elements, supporting nutritional health and offering potential for inclusion in food security programs.

APPLICATION OF SEAWEED

- 1. Food Industry:** Used as a superfood and dietary supplement due to its high content of vitamins, minerals, amino acids, and antioxidants. Popular in salads, soups, and snacks.
- 2. Pharmaceuticals & Healthcare:** Contains bioactive compounds that help in managing cancer, diabetes, arthritis, heart disease, and boosting immunity.
- 3. Cosmetics & Personal Care:** Widely used in skin-care and haircare products for their hydrating, anti-ageing, and anti-inflammatory properties.
- 4. Agriculture (Biostimulants & Fertilizers):** Used as organic biostimulants and soil conditioners, enhancing crop growth, improving soil health, and reducing dependency on chemical inputs.

5. **Biofuel Production:** Seaweed is a promising raw material for producing bioethanol and biogas, offering a sustainable alternative to fossil fuels.
6. **Animal Feed:** Added to livestock and aquaculture feed to improve nutrition, immunity, and digestion in animals.
7. **Bioplastics and Packaging:** Used in the development of biodegradable plastics, offering an eco-friendly solution to plastic pollution.
8. **Water Purification & Carbon Sequestration:** Seaweed farms help remove excess nutrients and heavy metals from seawater and absorb CO₂, contributing to cleaner oceans and climate action.

CHALLENGES IN SEAWEED FARMING

1. **Lack of Awareness and Training:** Many coastal communities are not fully aware of seaweed farming techniques, best practices, and economic potential.
2. **Limited Access to Quality Seed and Infrastructure:** There is a shortage of certified seaweed seedlings, nurseries, and cultivation infrastructure such as ropes, rafts, and boats.
3. **Seasonal and Regional Constraints:** Seaweed farming is often affected by seasonal variations, monsoons, and temperature-sensitive species, limiting year-round cultivation.
4. **Environmental Concerns:** Improper farming practices can lead to marine pollution, biodiversity disruption, and degradation of natural seaweed beds.
5. **Weak Market Linkages and Price Fluctuations:** Farmers face challenges in accessing reliable markets, resulting in unstable prices and low-profit margins.
6. **Lack of Processing and Value Addition Facilities:** Most coastal areas lack local processing units, limiting the ability to produce high-value products like biofertilizers, bioplastics, or cosmetics.
7. **Regulatory and Policy Gaps:** The absence of a comprehensive seaweed policy or clear coastal zone regulations creates confusion and delays in permissions and expansion.

8. **Limited R&D and Innovation:** Inadequate investment in research, species development, disease management, and modern cultivation technologies hamper productivity.

WAY FORWARD

1. **Capacity Building & Awareness:** Conduct targeted training programs, workshops, and awareness campaigns for coastal communities, especially women and youth, on seaweed cultivation and its benefits.
2. **Develop Quality Seed Banks and Nurseries:** Establish certified hatcheries and seed banks to ensure the timely availability of high-yield and disease-resistant seaweed varieties.
3. **Promote Public-Private Partnerships (PPP):** Encourage investment through PPP models in infrastructure, processing units, and value chains to enhance scalability and market access.
4. **Strengthen Market Linkages:** Create organized cooperatives, digital platforms, and tie-ups with industries to ensure fair prices and reduce market dependency.
5. **Policy and Regulatory Framework:** Formulate a comprehensive National Seaweed Policy aligned with coastal zone management, environmental sustainability, and livelihood promotion.
6. **Invest in Research & Innovation:** Support R&D in climate-resilient species, disease control, cultivation technologies, and value-added product development through institutions and startups.
7. **Financial and Insurance Support:** Provide subsidies, soft loans, and insurance coverage to seaweed farmers under schemes like PMMSY and Blue Economy initiatives.
8. **Infrastructure Development:** Develop dedicated Seaweed Parks, cold chain facilities, and processing units near farming clusters to improve post-harvest value addition and exports.

CONCLUSION

Seaweed farming can improve the lives of India's coastal communities by creating jobs and increasing incomes. It's a sustainable alternative to traditional

fishing, especially for women and youth. While challenges like climate risks and market access exist, government schemes like PMMSY and the Seaweed Park in Tamil Nadu are helping the industry grow. With more support and innovation, seaweed farming can boost India's economy and build a greener future for coastal areas.

BOOSTING STRATEGIC RESOURCES: CENTRE OF EXCELLENCE FOR CRITICAL MINERALS UNDER NCMM



WHY IN THE NEWS?

The Ministry of Mines has recently issued guidelines for the establishment of Centres of Excellence (CoEs) under the National Critical Mineral Mission (NCMM). This initiative is a key component of the mission's objective to promote research and technology development in the field of critical minerals. Critical raw materials are vital for clean energy, e-mobility, and advanced technological sectors such as defence, electronics, and space. The CoEs will play a pivotal role in developing, demonstrating, and deploying technologies

through an end-to-end systems approach, aiming to achieve higher Technology Readiness Levels (TRL 7/8), including pilot plant and pre-commercial demonstration stages. These Centres of Excellence will be recognised from among reputed academic and R&D institutions, based on prescribed eligibility criteria, and will undertake cutting-edge research to boost India's scientific and technological capabilities in this domain. Functioning on a Hub and Spoke model, each Coe will operate as a consortium comprising at least two industry partners and two academic or R&D partners.

WHAT ARE THE CRITICAL MINERALS?

The Energy Act of 2020 defined critical minerals as those that are essential to the economic or national security of the United States; have a supply chain that is vulnerable to disruption; and serve an essential function in the manufacturing of a product, the absence of which would have significant consequences for the economic or national security of the U.S. The act further specified that critical minerals do not include fuel minerals, water, ice, or snow, or common varieties of sand, gravel, stone, pumice, cinders, and clay.

EXAMPLE OF CRITICAL MINERALS

Critical Mineral	Major Uses
Lithium	Batteries (EVs, electronics), energy storage systems
Cobalt	Lithium-ion batteries, aerospace alloys
Nickel	Stainless steel, batteries for EVs
Graphite	Battery anodes, lubricants, and refractories
Manganese	Steel production, battery cathodes
Copper	Electrical wiring, motors, and renewable energy infrastructure
Aluminium	Power transmission, lightweight transport (EVs, aircraft)
Rare Earth Elements (REEs)	Permanent magnets in EVs, wind turbines, electronics, and defence
Neodymium, Dysprosium, Terbium (REE subtypes)	High-strength magnets for clean energy tech
Tungsten	Cutting tools, defence, aerospace
Tin	Soldering in electronics, battery chemistries

DISTRIBUTIONS OF CRITICAL MINERALS IN INDIA AND THE WORLD

Mineral	Major Producing Countries	Key Notes
Lithium	Australia, Chile, China, Argentina	Lithium Triangle (Chile-Argentina-Bolivia); China dominates refining
Cobalt	DR Congo, Russia, Australia, Philippines	DR Congo supplies >70%; China refines majority
Nickel	Indonesia, Philippines, Russia, Canada, New Caledonia	Indonesia emerging as global leader for battery-grade nickel
Graphite	China, Mozambique, Brazil, Madagascar	China controls both natural and synthetic graphite processing
Rare Earths	China, USA, Australia, Vietnam, Myanmar	China controls ~60% production and >80% refining
Copper	Chile, Peru, China, DR Congo, USA	Andes region is the copper belt; strategic for energy networks
Aluminium (Bauxite)	Australia, China, Guinea, Brazil	Guinea has world's richest bauxite reserves
Chromite	South Africa, Kazakhstan, India	South Africa is the top producer
Tungsten	China, Vietnam, Russia, Portugal	China holds ~85% of global output
Manganese	South Africa, Australia, Gabon	Used in steel and batteries

DISTRIBUTION OF CRITICAL MINERALS IN INDIA

Mineral	States with Known Deposits	Remarks
Lithium	Jammu & Kashmir (Reasi), Karnataka (Mandya)	Reasi: 5.9 million tonnes (inferred); under exploration
Cobalt	Odisha, Jharkhand, Nagaland	Found with copper/nickel ores; low domestic production
Nickel	Odisha (Sukinda), Jharkhand	Occurs with laterite ores; dependence on imports
Graphite	Odisha, Arunachal Pradesh, Chhattisgarh, Jharkhand, Tamil Nadu	India is 6th in global graphite reserves
Rare Earths	Andhra Pradesh, Odisha, Kerala, Tamil Nadu	Monazite-rich beach sands; processed by IREL
Copper	Rajasthan (Khetri), Madhya Pradesh (Malanjkhand), Jharkhand	Limited refining; imports continue
Chromite	Odisha (Sukinda), Karnataka	Odisha is the leading producer
Tungsten	Rajasthan (Degana, Balda)	Reserves are limited
Molybdenum	Tamil Nadu (Harur)	Strategic use in alloys; low production
Vanadium	Arunachal Pradesh	Exploration in progress; used in steel and batteries
Bauxite (Aluminium)	Odisha, Gujarat, Maharashtra, Chhattisgarh	India has the 5th largest reserves

SIGNIFICANCE CRITICAL MINERALS

1. **Essential for Clean Energy Transition:** Critical minerals like lithium, cobalt, and rare earths are vital for renewable energy technologies such as solar panels, wind turbines, and electric vehicle (EV) batteries.
2. **Strategic for National Security:** These minerals are crucial in defence, space, and nuclear sectors, making them essential for national security and strategic autonomy.
3. **Backbone of Modern Technologies:** They are indispensable for advanced electronics, semiconductors, smartphones, satellites, and AI-enabled devices.
4. **Support for Electric Mobility and Battery Storage:** Minerals such as lithium, nickel, and graphite are fundamental in the production of lithium-ion batteries, which power EVs and energy storage systems.
5. **Global Economic Competitiveness:** Countries with access to critical minerals have a significant advantage in emerging technologies and future industrial leadership.
6. **Supply Chain Vulnerability and Geopolitical Leverage:** Over-dependence on a few countries (especially China) for supply makes them geopolitically sensitive and subject to global trade tensions.
7. **Employment and Economic Opportunities:** Exploration, mining, processing, and recycling of critical minerals create jobs and industrial development opportunities, especially in resource-rich regions.
8. **Supports Sustainable Development Goals (SDGs):** Responsible mining and circular economy practices in critical minerals can help achieve goals related to clean energy, innovation, industry, and climate action.

GOVERNMENT INITIATIVE TO TAP CRITICAL MINERAL POTENTIAL

1. **National Critical Mineral Mission (NCMM):** Aimed at reducing import dependency and establishing a resilient domestic supply chain for critical minerals. Budget of ₹16,300 crore

for 2024–2031 to enhance exploration and processing.

2. **Khanij Bidesh India Ltd. (KABIL):** Focus on acquiring critical mineral assets abroad, particularly in countries like Argentina and Chile for lithium and cobalt.
3. **Recycling and Sustainable Practices:** ₹1,500 crore allocated for critical mineral recycling, with incentives to encourage the sustainable use of resources.
4. **Exploration and Licensing Reforms:** New exploration licenses to encourage private sector participation and fast-tracked project approvals.
5. **Strategic International Collaboration:** Active involvement in global partnerships, such as the Minerals Security Partnership (MSP), and bilateral agreements with countries like the UAE to strengthen supply chains.
6. **Support for Indigenous Research & Development (R&D):** Establishment of Centres of Excellence (CoEs) focused on advancing technology in critical minerals extraction, beneficiation, and recycling to improve domestic capabilities.
7. **Fast-Tracking Mining Licenses:** Streamlined regulatory processes and establishment of a fast-track approval system to expedite critical mineral exploration, ensuring timely mining operations and project execution.
8. **Promotion of Public-Private Partnerships (PPP):** Encouragement of PPP models to bring in both expertise and investment from private sector players, boosting the scale of exploration, extraction, and processing.

CHALLENGES IN TAPPING CRITICAL MINERALS AND CRITICAL MINERAL POTENTIAL

1. **Limited Geological Mapping and Exploration:** Many critical minerals in India remain unexplored due to inadequate geoscientific data and mapping in remote or ecologically sensitive regions.
2. **High Import Dependency:** India is heavily reliant on imports for key minerals like lithium, cobalt, and rare earth elements, posing a threat to energy security.

3. **Lack of Processing and Refining Infrastructure:** Absence of advanced domestic facilities for beneficiation and processing limits value addition within India.
4. **Environmental and Social Concerns:** Mining activities often face resistance due to their ecological impact, displacement of communities, and challenges in obtaining environmental clearances.
5. **Technological Gaps:** India lacks cutting-edge technology for deep-sea and low-grade ore mining, as well as efficient recycling of used minerals.
6. **Investment Risks and Policy Uncertainty:** High capital investment, long gestation periods, and regulatory hurdles deter private sector participation.
7. **Global Supply Chain Vulnerabilities:** Over-concentration of critical mineral production in a few countries (like China) creates geopolitical and trade-related vulnerabilities.
8. **Killed Manpower Shortage:** The critical minerals sector requires highly trained geologists, engineers, and metallurgists, who are currently in limited supply.
5. **Boost Public-Private Partnerships (PPP):** Encourage joint ventures between government, industry, and academia for exploration, innovation, and skill development.
6. **Enhance R&D and Innovation Ecosystem:** Strengthen Centres of Excellence (CoEs), promote technology incubation, and support indigenous research in extraction and recycling.
7. **Secure International Collaborations:** Build strategic partnerships with resource-rich countries, and diversify supply chains through global alliances like the Minerals Security Partnership (MSP).
8. **Policy Stability and Investor Incentives:** Simplify regulations, offer tax incentives, and ensure transparent licensing to attract both domestic and foreign investments.

WAY FORWARD

1. **Accelerated Geological Exploration:** Expand and modernise geological surveys using AI, satellite imaging, and remote sensing to map critical mineral resources comprehensively.
2. **Strengthen the National Critical Mineral Mission (NCMM):** Ensure robust implementation with clear timelines, inter-ministerial coordination, and regular monitoring to meet strategic objectives.
3. **Develop Domestic Processing Infrastructure:** Invest in setting up state-of-the-art beneficiation and refining plants to reduce import dependency and enhance value addition.
4. **Promote Sustainable and Responsible Mining:** Enforce strict environmental and social safeguards, adopt eco-friendly technologies, and ensure community participation in mining decisions.

CONCLUSION

Critical minerals are the backbone of the 21st-century green and digital economy, playing a vital role in clean energy transitions, national security, and advanced technologies. With global demand rising sharply, India must act swiftly to secure its place in global value chains. Recent policy initiatives like the National Critical Mineral Mission and international collaborations mark a positive beginning, but challenges such as exploration gaps, processing deficits, and environmental concerns remain. A focused, multi-pronged approach—grounded in sustainability, innovation, and strategic diplomacy—is essential for India to unlock its vast critical mineral potential and achieve long-term energy and economic security.

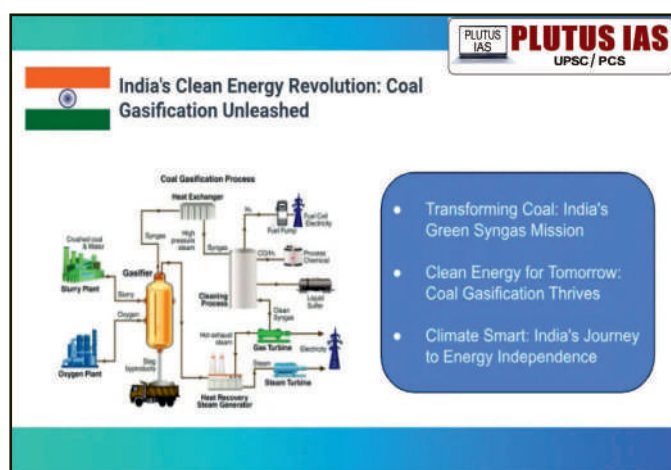
**TRANSFORMING COAL
USAGE: INDIA'S VISION FOR
GASIFICATION BY 2030**



WHY IN THE NEWS?

Coal gasification has been making headlines due to the Indian government's push to develop 100 million tonnes (MT) of coal gasification capacity by 2030 as part of its strategy to reduce coal combustion and cut emissions. In recent months, The Ministry of Coal announced financial incentives and policy reforms

to promote coal gasification projects. Public Sector Undertakings (PSUs) such as Coal India Ltd. and GAIL have unveiled plans for large-scale gasification units. States like Odisha and Chhattisgarh have identified land for dedicated gasification parks. Global energy firms are exploring joint ventures with Indian companies for technology collaboration and investment. The push for gasification is also seen as an essential component of India's energy transition and carbon neutrality roadmap. Additionally, coal gasification plays a crucial role in reducing fertilizer imports by enabling domestic urea and methanol production.



WHAT IS COAL GASIFICATION INITIATIVE?

Coal gasification is a process that converts coal into syngas (synthesis gas), which is primarily a mixture of hydrogen (H₂), carbon monoxide (CO), and carbon dioxide (CO₂). This syngas can be used for generating electricity, making chemical fertilizers, or as a substitute for natural gas in various industrial processes. Unlike traditional coal combustion, gasification enables cleaner and more efficient utilization of coal. The Coal Gasification Initiative in India is a national effort to promote the adoption of coal gasification technology, particularly to reduce dependency on imported fuels and transition towards cleaner energy alternatives. The Indian government has set a target to gasify 100 million tonnes of coal by 2030. This initiative is part of a broader vision for energy security, economic development, and environmental sustainability.

COAL IN INDIA:

India holds the fifth-largest coal reserves in the world and is the second-largest producer of coal. The majority of India's coal is non-coking, used primarily for power generation.

State	Type of Coal Found	Estimated Reserves (in billion tonnes)	Notable Features
Jharkhand	Coking, Non-Coking	83+	Major coal mining hub, rich in coking coal
Odisha	Non-Coking, Lignite	84+	Hosts Talcher and Ib Valley coalfields
Chhattisgarh	Non-Coking	57+	Korba and Mand Raigarh key mining regions
West Bengal	Coking	32+	Contains Raniganj coal-field
Madhya Pradesh	Non-Coking, Lignite	29+	Contains Sohagpur and Pench-Kanhan fields
Telangana	Non-Coking	22+	Godavari Valley coalfields
Maharashtra	Non-Coking, Lignite	12+	Wardha Valley and Kamp-tee fields
Tamil Nadu	Lignite	34+	Neyveli lignite reserves
Assam	Lignite, Bituminous	4+	Small but high-quality reserves

Meghalaya	Bituminous, Sub-Bituminous	3+	Unregulated mining concerns
Gujarat	Lignite	9+	Vast lignite deposits in Bhavnagar region

- **Top coal-producing states:** Jharkhand, Chhattisgarh, Odisha, West Bengal, Madhya Pradesh.
- **Major coal companies:** Coal India Limited (CIL), Singareni Collieries Company Limited (SCCL).
- **Total coal reserves:** Over 319 billion tonnes (as per Geological Survey of India).

ISSUES WITH COAL GASIFICATION

1. **High Capital and Operating Costs:** Coal gasification plants are capital-intensive, often requiring significantly more investment than traditional coal plants. Maintenance, gas cleaning systems, and carbon capture technologies further increase operational expenses, making it less attractive for private investment without substantial government support.
2. **Water Consumption:** The gasification process consumes large quantities of water, which poses a serious concern in water-scarce regions. Water is needed not only for gasification but also for cooling and cleaning, straining local water resources and creating potential conflict in agricultural regions.
3. **Carbon Emissions:** Although cleaner than direct coal combustion, coal gasification still emits considerable carbon dioxide unless coupled with carbon capture and storage (CCS). Without CCS, the environmental benefits remain marginal, defeating the purpose of moving towards cleaner technologies.
4. **Technology and Infrastructure Gaps:** India lacks large-scale, proven gasification technologies suited to its variety of coal types. Additionally, infrastructure such as pipelines for syngas transport, CCS networks, and integrated industrial clusters are underdeveloped, delaying project implementation.
5. **Low Efficiency with Indian Coal:** Indian coal has high ash content and low calorific value, which

hampers gasification efficiency. Specialized pre-treatment and advanced reactor designs are needed to overcome this, adding further complexity and cost.

6. **Regulatory and Policy Uncertainty:** Absence of clear long-term policies and incentives creates hesitation among investors. Frequent regulatory changes, overlapping jurisdiction between central and state governments, and lack of clarity on carbon pricing mechanisms further hinder adoption.
7. **Environmental Risks:** Improper handling of toxic byproducts such as tars, heavy metals, and wastewater can lead to soil and groundwater contamination. If not managed properly, gasification can pose similar ecological threats as conventional coal use.
8. **Public Opposition and Land Acquisition:** Like other large-scale industrial projects, coal gasification plants face resistance from local communities due to concerns over pollution and displacement. Land acquisition delays can stall projects indefinitely and raise legal as well as social tensions.

ALTERNATIVE SUSTAINABLE ENERGY METHODS

1. **Solar Power:** India has a vast solar potential, and costs have dropped significantly. Government initiatives like PM-KUSUM and solar parks aim to harness this. With over 300 sunny days in most regions, solar energy offers unparalleled scalability and rural development opportunities.
2. **Wind Energy:** Particularly in coastal states like Tamil Nadu and Gujarat, wind energy can provide large-scale power generation. India's wind power capacity ranks among the top five globally, indicating huge scope for further expansion.
3. **Green Hydrogen:** Hydrogen produced using renewable energy (electrolysis) can replace syngas in several industrial processes. It also has

potential applications in fuel cells, aviation, and long-haul transportation.

4. **Bioenergy:** Biomass and biogas plants offer decentralized, renewable solutions in rural areas. These also promote waste-to-wealth initiatives and support sustainable agriculture practices.
5. **Small Hydro Projects:** Run-of-river hydroelectric projects provide clean energy without major environmental impacts. They can supply remote regions and contribute to regional grid stability.
6. **Energy Storage:** Battery and pumped storage systems are essential to address the intermittency of renewable sources. They enable load balancing and support uninterrupted power supply during peak demand.
7. **Improved Grid Infrastructure:** Smart grids and flexible transmission networks are needed to integrate renewable energy efficiently. Advanced monitoring systems can also help manage supply-demand fluctuations in real time.
8. **Waste-to-Energy:** Converting urban and agricultural waste into energy can address both waste and energy issues. It reduces landfill burden while generating local energy and creating green jobs.

CONCLUSION

The Coal Gasification Initiative represents a critical step in India's journey towards a more self-reliant and environmentally conscious energy landscape. While it offers notable advantages such as cleaner utilization of coal, energy security, and industrial development, it also faces serious challenges including high costs, environmental concerns, and technological gaps. To make the initiative successful, India must adopt a balanced strategy. This includes promoting R&D, incentivizing private sector participation, implementing strict environmental safeguards, and developing carbon capture mechanisms. Simultaneously, a robust push for sustainable alternatives like solar, wind, hydrogen, and bioenergy is essential. By aligning economic goals with ecological responsibilities, India can pave the way for a cleaner, secure, and sustainable energy future.

PRELIMS QUESTIONS

1. With reference to forest protection initiatives in India, consider the following statements:

1. The Green India Mission (GIM) is one of the eight missions under the National Action Plan on Climate Change (NAPCC).
2. The National Agroforestry Policy aims to integrate trees into farmlands to promote climate resilience and biodiversity.
3. The Forest Conservation Act, 1980, primarily focuses on granting land rights to forest-dwelling communities.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

2. With reference to India's seismic vulnerability, which of the following statements is/are correct?

1. India is divided into five seismic zones based on earthquake intensity and frequency.
2. Zone V is the most seismically active and includes parts of Gujarat, the northeastern states, and the Himalayan region.
3. Soft soil conditions in certain areas can amplify seismic waves, increasing earthquake damage.

Select the correct answer using the code given below:

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

3. With reference to landslides in India, consider the following statements:

1. The Himalayas are more prone to landslides due to their young fold mountain structure and high seismic activity.
2. The Western Ghats experience landslides primarily due to excessive rainfall and deforestation.
3. The Landslide Hazard Zonation (LHZ) maps are prepared by the Indian Space Research

Organisation (ISRO).

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

4. With reference to Seaweed Farming in India, consider the following statements:

1. Seaweed cultivation requires fertilizers and pesticides for optimal growth.
2. Seaweed farming is recognized under the Pradhan Mantri Matsya Sampada Yojana (PMMSY).
3. Seaweed can be used as a biostimulant in agriculture.
4. Tamil Nadu is among the leading states identified for seaweed cultivation.

Which of the above statements is correct?

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

5. With reference to "Critical Minerals", consider the following statements:

1. India is self-sufficient in the production of lithium and cobalt.
2. Critical minerals are essential for renewable energy, defence, and electronic applications.
3. The Minerals Security Partnership (MSP) aims to secure stable supply chains for critical minerals globally.

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

6. Which of the following statements best describes the process of Underground Coal Gasification (UCG)?

- A. Extraction of coal through deep-shaft mining.
- B. Direct combustion of coal inside the earth for thermal energy.
- C. In-situ conversion of coal into syngas by injecting oxidants underground.
- D. Extraction of methane trapped in coal seams.

ANSWER

1. B	2. B	3. B	4. C	5. B	6. C
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MAINS QUESTIONS

1. Discuss the major causes of forest degradation in India and suggest measures to promote forest conservation and sustainable management.
(250 words, 15 marks)
2. Examine the role of tectonic activity in shaping India's earthquake risk. How can seismic safety be improved?
(250 words, 15 marks)
3. "Landslides are a recurrent disaster in India, especially in the Himalayan and Western Ghats regions." Discuss the causes, consequences, and mitigation strategies for landslides in India
(250 words, 15marks)
4. Discuss the potential of seaweed farming in India as a sustainable livelihood option for coastal communities. What are the challenges and suggest a way forward for promoting its large-scale adoption?
(250 words, 15marks)
5. Discuss the strategic significance of critical minerals for India in the context of clean energy transition, national security, and economic development. Examine the challenges and suggest a way forward.
(250 words, 15 marks)
6. How can coal gasification support India's industrial competitiveness, especially in the chemical and fertilizer sectors? Discuss with examples.
(250 words, 15marks)



ORGANISED CRIME HIDDEN THREAT TO NATIONAL SECURITY



WHY IN THE NEWS?

Kannada actress Ranya Rao was arrested on March 3 at Bengaluru's Kempegowda International Airport for allegedly smuggling 14.2 kilograms of gold worth ₹12.56 crore from Dubai. She had concealed the gold using bandages and tissues. The Directorate of Revenue Intelligence (DRI) has now arrested a third suspect, Sahil Sakariya Jain, a gold dealer from Ballari, for allegedly helping Ranya Rao. Digital evidence reportedly links him to the smuggling operation. He is accused of facilitating the sale of smuggled gold and sharing the proceeds. Ranya Rao has been booked under the Customs Act and the Prevention of Smuggling Activities Act, making this case a significant breakthrough in India's gold smuggling network.

HOW GOLD SMUGGLING IS AN ORGANISED CRIME

Category	Key Points
Gold Smuggling & Crime Networks	
Transnational Operations	Global crime syndicates use sophisticated smuggling methods.
Criminal Nexus	Linked to drug trafficking, human trafficking, and money laundering.
Corruption	Law enforcement, customs, and politicians often facilitate smuggling.
Hawala Financing	Informal money transfer system funds illicit gold trade.
Gold & Money Laundering	
Cash-Intensive	Gold helps convert illegal cash into legitimate assets.

WHAT IS ORGANISED CRIME?

Organized crime refers to highly structured groups engaged in illegal activities for financial gain. These groups operate in a systematic, coordinated, and often violent manner, maintaining control over illicit markets and engaging in criminal enterprises.

KEY CHARACTERISTICS OF ORGANIZED CRIME:

- Hierarchy & Structure:** Led by a boss or leader, with ranks such as underbosses, lieutenants, and foot soldiers.
- Illegal Activities:** Involves crimes like drug trafficking, smuggling, extortion, money laundering, cybercrime, and human trafficking.
- Secrecy & Loyalty:** Members follow a strict code of silence (e.g., Omertà in the Mafia).
- Corruption & Influence:** These groups often bribe officials, law enforcement, and politicians to evade justice.
- Use of Violence & Intimidation:** Threats, extortion, and assassinations are common tactics.

Category	Key Points
Untraceable	Easily melted and recast, making tracking difficult.
High Demand	Ensures quick absorption into the legal market.
India: A Smuggling Hub	
Cultural Demand	A strong preference for gold fuels both legal and illegal trade.
Strategic Transit Point	Close to smuggling routes from UAE, Africa, and South America.
Legal Integration	Smuggled gold is absorbed into jewellery manufacturing and exports.
Concealment Tactics	Hidden in luggage, electronics, or even body cavities.
Strict Penalties	Customs Act (1962) imposes 3-7 years of imprisonment

WHY GOLD SMUGGLING IS LUCRATIVE

- 1. High Value, Small Size:** Gold has a high value-to-weight ratio, meaning large amounts of wealth can be transported in small quantities. Unlike drugs or weapons, gold is easy to conceal, making it ideal for smuggling.
- 2. Tax Evasion & High Import Duties:** Many countries impose heavy taxes on gold imports (e.g., India levies a high import duty), creating a strong incentive for smuggling. By illegally bringing in gold, smugglers avoid duties and sell at a higher profit margin.
- 3. Global Demand & Liquidity:** Gold is a universally accepted commodity with steady demand in markets like India, China, and the Middle East. It can be quickly sold or melted down, making it an attractive asset for criminals.
- 4. Difficulty in Tracking:** Unlike cash, gold is untraceable once melted or recast. Unlike digital

transactions, which leave a trail, smuggled gold can be easily laundered into legal markets without detection.

- 5. Involvement of Organized Crime:** Laundering money by converting illicit cash into gold. Finance other illegal activities like drug trafficking and terrorism. Bribe officials for protection from law enforcement.
- 6. Use of Alternative Routes:** Gold is often smuggled through countries with lax regulations, like Dubai, Myanmar, and Sri Lanka, before reaching high-tax destinations like India. Smugglers use airports, land borders, and sea routes to move gold undetected.
- 7. Minimal Risk Compared to Drugs:** Unlike drug smuggling, which carries severe legal penalties, gold smuggling is often treated as a financial crime with lighter punishments, making it an attractive option for criminals.

CHALLENGES POSED BY ORGANIZED CRIME TO NATIONAL SECURITY

Category	Impact
Erosion of State Authority & Governance	Corruption: Criminals infiltrate government institutions, bribing officials and weakening law enforcement.
	Weakened Governance: Loss of public trust leads to instability and lawlessness.
	Undermining Sovereignty: Criminal groups operate across borders, challenging state authority.
Instability & Conflict	Fueling Armed Conflicts: Criminal gangs violently compete for illicit profits and territorial control.

Category	Impact
	Providing Resources to Conflict Parties: Crime syndicates fund armed groups, prolonging wars.
	Destabilizing Regions: Crime-related instability discourages investment and weakens economies.
Financial & Economic Impacts	Economic Costs: Drug trafficking, cybercrime, and financial fraud drain national economies.
	Reduced State Resources: Governments spend billions combating crime instead of funding public services.
	Undermining Financial Systems: Money laundering and fraud weaken banking systems and digital currencies.
Public Health & Human Rights	Drug Trafficking: This leads to addiction, violent crime, and public health crises.
	Human Trafficking: Victimizes vulnerable populations, violating human rights.
	Undermining Human Rights: Crimes like extortion and kidnapping create a climate of fear.
Linkages with Terrorism	Terrorist Financing: Organized crime groups fund terrorist organizations.
	Weapon Smuggling: Criminal networks supply weapons to terror groups.
	Exploiting Vulnerabilities: Crime syndicates thrive in politically unstable regions.

GOVT. MEASURES AND POLICY TO COMBAT ORGANIZED CRIMES

1. Strengthening Legal Frameworks

- **MCOCA (1999), PMLA (2002), UAPA (1967), NDPS Act (1985), IPC, Arms Act:** Laws targeting organized crime, financial fraud, drug trafficking, and terrorism.
- **Companies Act (2013), Wildlife Protection Act (1972), POCSO Act (2012):** Regulating fraud, wildlife crime, and child exploitation.

2. Specialized Law Enforcement Agencies

- **NIA, CBI, ED, NCB, FIU-IND, State ATS & STF:** Investigate and prosecute organized crime and financial offences.
- **DRI & Border Security Forces:** Prevent smuggling and cross-border crime.

3. Intelligence & Surveillance Strengthening

- **NATGRID, CCTNS, I4C, Digital Forensics:** Enhancing crime tracking and cybersecurity.
- **Use of AI & Big Data:** Monitoring financial fraud and online crimes.

4. International Cooperation

- **Interpol, UN Conventions, FATF Compliance:** Tackling transnational crime and money laundering.
- **Extradition & MLAT Treaties:** Facilitating criminal repatriation.

5. Border Security & Smuggling Prevention

- **BSF, ITBP, Coastal Security, Drone Surveillance:** Preventing illegal arms, drugs, and human trafficking.

6. Public Awareness & Community Involvement

- **Crime Prevention Campaigns, Helpline Portals, Whistleblower Protection:** Encouraging citizen participation.

7. Judicial & Policy Reforms

- **Fast-Track Courts, Witness Protection, Asset Seizures, Electronic Evidence:** Ensuring swift prosecution and crime prevention.

LIMITATIONS AND CHALLENGES TO COMBAT ORGANIZED CRIMES IN INDIA

1. **National Security vs. Human Security:** Balancing national security and human security often leads to conflicts, especially when countering organized crime through surveillance and power-enhancing laws.
2. **Excessive Police Brutality:** The fight against organized crime sometimes results in police brutality, undermining trust in law enforcement. For example, in Uttar Pradesh and Punjab, cases.
3. **Transnational Nature of Crimes:** Organized crime increasingly operates across borders, with syndicates exploiting international routes for activities like drug trafficking and human trafficking.
4. **State-Sponsored Crimes in Border Areas:** In border regions such as West Bengal and Punjab, organized crime thrives with tacit political support, complicating efforts to curb illegal activities.
5. **Gray Zone Warfare Using Cyber Technology:** The use of advanced cyber technologies by organized criminals has blurred the lines between traditional and digital crimes.
6. **Use of Advanced Technology by Criminals:** Criminals are using high-tech methods to evade detection, making it difficult for law enforcement to keep up.
7. **Lack of Effective Police Training:** Law enforcement agencies often lack specialized training and equipment to handle specific crimes such as cybercrime, human trafficking, and money laundering.

8. Lack of Cooperation Among Agencies:

Cooperation among agencies like the CBI, Enforcement Directorate, and state police is often fragmented, which weakens efforts to tackle organized crime.

9. Political Patronage to Criminals:

Political figures sometimes protect organized criminals, allowing them to operate with impunity.

10. Delayed Prosecution:

Delayed legal proceedings often prevent swift justice in organized crime cases, reducing the deterrent effect. The slow pace of trials, as seen in the 1993 Bombay bombings, allows criminals to continue their operations without facing timely legal consequences

RECOMMENDATIONS TO COMBAT ORGANIZED CRIMES IN INDIA

1. **Strengthening Law Enforcement:** Improve intelligence-sharing, modernize investigative tools (AI-driven tracking, surveillance), and establish specialized anti-crime units.
2. **Anti-Corruption Measures:** Strengthen internal oversight in law enforcement, impose strict penalties for corrupt officials, and increase transparency in political funding.
3. **Financial Regulations & Money Laundering Controls:** Monitor hawala networks, enforce strict KYC norms in banking and gold trading, and enhance cooperation with global financial intelligence units.
4. **Border Security & Smuggling Prevention:** Upgrade surveillance at borders and ports, collaborate with neighbouring countries, and crack down on illegal gold markets.
5. **Legal Reforms & Strict Penalties:** Strengthen laws like the Customs Act, PMLA (Prevention of Money Laundering Act), MCOCA, and fast-track trials for organized crime cases.
6. **Public Awareness & Whistleblower Protection:** Run awareness campaigns on the impact of organized crime and enhance whistleblower protection programs.

7. International Collaboration: Strengthen ties with Interpol, FATF, and other global agencies and improve extradition treaties for criminals involved in transnational crimes.

CONCLUSION

Organized crime, including gold smuggling, poses a significant threat to India's national security, economy, and governance. Criminal syndicates exploit corruption, weak enforcement, and international routes to evade justice. The arrest of Ranya Rao highlights the deep-rooted nature of smuggling networks and their connections to financial crimes. While India has strong legal frameworks and enforcement agencies, challenges like political patronage, technological advancements by criminals, and delayed prosecution hinder effective action. Strengthening law enforcement, increasing international cooperation, improving financial monitoring, and enhancing border security are crucial to combating organized crime.

DRUG TRAFFICKING: A GROWING TRANSNATIONAL ORGANIZED CRIME



WHY IN THE NEWS?

Union Home Minister Amit Shah has said that the Modi government is mowing down drug cartels with full might. In a social media post lauding the efforts of agencies, Mr Shah said that in his vision to build a drug-free Bharat, the country's agencies have launched massive operations strangling drug cartels and seized 30.4 kilograms of methamphetamine tablets worth 24.32 crore rupees while arresting three people in Assam. He added that the government's offensive against drugs will continue with ruthless force. The Home Minister congratulated the Narcotics Control Bureau, Assam Police, and the CRPF on this breakthrough.

UNDERSTANDING DRUG TRAFFICKING IS AN ORGANIZED CRIME.

1. Definition & Nature: Drug trafficking is the illegal production, transport, and sale of narcotics. It functions through organized criminal syndicates with transnational operations.

2. Organized Crime Nexus: Deeply linked with terrorism, arms trade, money laundering, and human trafficking. Involves a hierarchy of producers, transporters, dealers, and financiers.

3. India's Strategic Location: India lies between the Golden Crescent (Afghanistan, Pakistan, Iran) and the Golden Triangle (Myanmar, Laos, Thailand), making it vulnerable as a source, transit, and destination.

4. Social & National Impact: Results in addiction, rising crime, youth vulnerability, and a major public health burden. Funds insurgency and weakens national institutions through corruption.

5. Enforcement & Legal Framework: India enforces the NDPS Act, 1985, with key agencies like NCB, DRI, BSF, and state police. The global collaboration includes UNODC and Interpol.

6. Challenges: Porous borders, cyber and dark web networks, crypto payments, lack of coordination, low convictions, and poor access to rehabilitation services.

DRUGS TRAFFICKING AS A THREAT TO INDIA'S NATIONAL SECURITY

1. Terror Funding: Drug money is used to finance terrorist groups and insurgents, especially in border regions like Punjab, J&K, and Northeast India.

2. Cross-Border Smuggling: India's porous borders with Pakistan, Myanmar, and Nepal are exploited by drug cartels, often in collaboration with hostile state actors.

3. Internal Instability: Drug addiction leads to youth radicalization, social unrest, and rising crime rates, weakening social cohesion.

4. Undermining Institutions: Corruption in law enforcement and politics due to drug money erodes governance and institutional integrity.

5. Insurgency Links: Northeast insurgent groups are known to engage in drug trafficking to fund operations, worsening regional conflicts.

6. Economic Drain: Public health costs, reduced productivity, and criminal justice expenses create a long-term economic burden on the state.

7. Cyber & Dark Net Threats: Modern trafficking uses the dark web and cryptocurrencies, posing digital security challenges and weakening traditional policing.

DRUGS TRAFFICKING INDIA'S VULNERABILITY

- 1. Geostategic Location:** India is sandwiched between the Golden Crescent (Afghanistan–Pakistan–Iran) and Golden Triangle (Myanmar–Laos–Thailand) — two of the world's largest illicit drug-producing regions.
- 2. Porous Borders:** Long, poorly monitored borders with Pakistan, Myanmar, Nepal, and Bangladesh allow easy smuggling of narcotics.
- 3. Insurgent & Terrorist Nexus:** Drug trafficking funds insurgent groups in the Northeast and extremist networks in Punjab and Kashmir, linking drugs with national security threats.

4. Coastal & Maritime Gaps: India's extensive coastline (over 7,500 km) lacks adequate maritime surveillance, making it vulnerable to sea-based drug trafficking.

5. Transit & Destination Country: India is not just a transit route but increasingly a consumer market, especially for synthetic drugs and opioids.

6. Dark Web & Tech Abuse: The use of darknet markets, encrypted apps, and crypto payments enables anonymous trafficking beyond traditional surveillance.

7. Weak Enforcement & Coordination: Fragmented coordination between state and central agencies, shortage of trained personnel, and low conviction rates weaken enforcement.

LEGAL AND INSTITUTIONAL MEASURES

Category	Measures/Institutions	Details
Legal Framework	NDPS Act, 1985	Prohibits production, sale, possession, and use of narcotics; prescribes severe penalties.
	Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988	Enables preventive detention of repeat offenders and drug traffickers.
	Controlled Substances Order, 2013	Regulates the manufacture and trade of precursor chemicals used in narcotics production.
	Money Laundering Prevention Act (PMLA)	Targets financial aspects of the drug trade, allowing asset seizures and confiscation.
	Extradition & MLATs	Facilitates international cooperation for arrest, prosecution, and extradition of drug offenders.
Institutional Mechanisms	Narcotics Control Bureau (NCB)	Coordinates drug law enforcement across India and handles inter-state trafficking cases.
	Directorate of Revenue Intelligence (DRI)	Tracks and curbs international narcotics smuggling through ports, airports, and customs.
	Border Security Force (BSF)	Guards India's land borders (e.g., India-Pakistan, India-Bangladesh) against drug smuggling.

Category	Measures/Institutions	Details
	Central Bureau of Narcotics (CBN)	Regulates legal opium cultivation and monitors illicit diversion of opium for illegal trade.
	State Anti-Narcotics Task Forces	Special units at the state level focused on tackling local drug trafficking issues.
	National Investigation Agency (NIA)	Investigates drug-terrorism links and handles high-priority drug-related national security cases.
	International Collaborations	Cooperation with UNODC , INTERPOL , and neighbouring countries for intelligence-sharing.

CHALLENGES IN COUNTERING DRUGS TRAFFICKING

- 1. Porous Borders:** India shares long and poorly monitored borders with countries like Pakistan, Myanmar, Nepal, and Bangladesh, making cross-border smuggling easier.
- 2. Geostrategic Location:** Positioned between the Golden Crescent and Golden Triangle, India is a prime route for drugs produced in these major illicit drug regions.
- 3. Corruption:** Corruption in law enforcement and political circles undermines effective drug control and enforcement efforts.
- 4. Use of Technology by Traffickers:** Drug traffickers exploit the dark web, encrypted apps, and cryptocurrency for anonymous transactions, evading traditional surveillance methods.
- 5. Weak Enforcement at Local Levels:** Limited resources, training, and coordination among local authorities reduce the effectiveness of drug enforcement at grassroots levels.
- 6. Drug Demand and Addiction:** Rising demand, particularly among youth, fuels both drug consumption and trafficking, complicating efforts to reduce both.
- 7. Terrorist and Insurgent Nexus:** Drug trafficking funds terrorist organizations and insurgency groups, complicating counter-narcotic efforts and national security.

- 8. Lack of Rehabilitation Programs:** Insufficient and ineffective rehabilitation programs prevent proper treatment and reintegration of drug users into society, leading to high relapse rates.
- 9. Underreporting & Social Stigma:** The social stigma surrounding drug use and underreporting of drug-related crimes results in inadequate data and an incomplete understanding of the problem's magnitude.
- 10. Limited International Cooperation:** While some cooperation exists, inconsistent coordination between India and neighbouring countries, as well as globally, delays effective action against international trafficking networks.

WAY FORWARD

- 1. Strengthen Border Surveillance:** Enhance border security and technology-based surveillance to prevent cross-border smuggling. Use drones, satellite monitoring, and electronic fencing to secure vulnerable borders.
- 2. International Cooperation:** Foster stronger cooperation with neighboring countries and international agencies like INTERPOL, UNODC, and SAARC for intelligence-sharing, joint operations, and tackling global trafficking networks.
- 3. Enhanced Enforcement and Training:** Invest in training law enforcement agencies at the state and local levels to improve their capabilities in drug detection, investigation, and prosecution.

- 4. Improved Drug Addiction Rehabilitation:** Expand and improve rehabilitation centres and social reintegration programs to address the root causes of addiction and ensure long-term recovery and reduction in recidivism.
- 5. Legislative Reforms:** Introduce stronger laws and amendments to the NDPS Act to ensure faster trials, harsher penalties, and greater accountability for law enforcement agencies.
- 6. Use of Technology for Monitoring:** Leverage artificial intelligence, data analytics, and blockchain to track and dismantle online drug trafficking operations and disrupt networks using the dark web and cryptocurrencies.
- 7. Public Awareness Campaigns:** Launch widespread public awareness and education campaigns targeting youth to reduce the demand for drugs and address misconceptions about drug use.
- 8. Target the Financial Networks:** Focus on money laundering operations linked to drug trafficking by tightening laws around financial transactions, crypto-regulations, and asset seizure.
- 9. Community Involvement:** Involve local communities in combating drug trafficking by building trust with law enforcement agencies, encouraging community policing, and creating support networks for vulnerable groups.

CONCLUSION

Drug trafficking remains a significant challenge to India's national security, public health, and socio-economic stability. Despite a robust legal framework and institutional measures, the porous borders, deep-rooted corruption, and the increasing use of technology by traffickers make the problem complex and multifaceted. The impact of drug trafficking extends beyond addiction, fueling terrorism, insurgency, and organized crime while also draining national resources. However, with the right strategies and sustained efforts, India can address these challenges effectively. Strengthening border security, enhancing international cooperation, improving rehabilitation programs, and leveraging technology for surveillance and monitoring can go a long way in combating the drug trade. Holistic

measures, focusing not only on enforcement but also on prevention and rehabilitation, are key to breaking the vicious cycle of drug abuse and trafficking.

SECURING SPACE: INDIA'S STRATEGIC DOCTRINE



WHY IN THE NEWS?

India is currently formulating its first-ever Military Space Doctrine, as announced by the Chief of Defence Staff (CDS) in early 2025. This development marks a strategic shift in India's defence policy, recognising space as a critical warfighting domain alongside land, sea, air, and cyber. The doctrine aims to define operational roles, deterrence frameworks, and capability development in space, especially amidst rising space militarisation by countries like China and the United States. Additionally, the recent approval of a 52-satellite military constellation, including private sector participation, further underscores India's ambition to secure its assets and influence in the increasingly contested space domain.



WHY IS A MILITARY SPACE DOCTRINE (MSD) NEEDED?

Space, once considered a peaceful domain reserved for scientific exploration, has become the next frontier of national defense. The militarization of space is no longer hypothetical. From anti-satellite (ASAT) weapons to space-based surveillance systems, nations are now aggressively securing

strategic advantages beyond the atmosphere. A Military Space Doctrine is needed to provide a clear policy framework for how a country intends to use, secure, and if necessary, defend its assets in outer space.

EXAMPLES HIGHLIGHTING THE NEED FOR MSD:

- 1. China's ASAT Test (2007):** China destroyed one of its own satellites using a ballistic missile, creating over 3,000 pieces of debris in low Earth orbit (LEO). This marked a turning point in global space policy and alarmed defense establishments worldwide.
- 2. U.S. Space Force Formation (2019):** The United States formalized its space military ambitions with the establishment of the U.S. Space Force, a separate branch of the armed forces.
- 3. India's Mission Shakti (2019):** India successfully demonstrated ASAT capability by shooting down a live satellite in LEO. This was a powerful signal of India's evolving military-space ambitions.
- 4. Ukraine-Russia War (2022–24):** The war demonstrated how commercial satellite constellations (like Starlink) could be leveraged in real-time combat scenarios, blurring lines between civilian and military space assets.

WHAT DOES A MILITARY SPACE DOCTRINE INCLUDE:

A Military Space Doctrine is a strategic document or framework that outlines a country's objectives, principles, and capabilities concerning military operations in outer space. It usually includes policy directives, command structures, integration with other military branches, legal frameworks, and technological roadmaps.

KEY COMPONENTS OF AN MILITARY SPACE DOCTRINE (MSD):

Component	Description
Strategic Objectives	National goals in space: deterrence, surveillance, early warning, force projection
Command & Control Structure	Who controls space-based military operations; integration with tri-services
Space Surveillance & Intelligence	Use of satellites for ISR (Intelligence, Surveillance, Reconnaissance)
Deterrence & Defense Mechanisms	ASAT weapons, missile warning systems, cyber capabilities
Rules of Engagement	Guidelines for conflict in space; how, when, and against whom force may be used
Legal & Ethical Frameworks	Compliance with treaties like the Outer Space Treaty (OST), 1967
Interoperability	Integration with allies and global coalition forces
Research & Development (R&D)	Investment in next-gen tech: quantum sensors, laser communication, AI in space
Dual-Use Infrastructure	Leveraging civilian satellites for military uses

IMPORTANCE OF MILITARY SPACE DOCTRINE

- 1. National Security and Strategic Deterrence:** An MSD enhances national defense by protecting critical space infrastructure such as GPS, communication, and early-warning systems. It deters adversaries from pre-emptive strikes and sets clear red lines.
- 2. Preventing Space Militarization Escalation:** By formalizing norms and doctrines, countries can avoid misunderstandings or inadvertent escalations. Clear doctrines ensure transparency and responsible behavior in space.
- 3. Enhancing Inter-Agency Coordination:** MSD helps harmonize civilian and military efforts

in space technology, optimizing budgets and technical expertise. It also coordinates efforts between ISRO/DRDO in India or NASA/DoD in the USA.

4. Preparedness for Emerging Threats: As space becomes contested, congested, and competitive (3C's), doctrines ensure preparedness for emerging threats such as:

- Directed energy weapons
- Cyberattacks on satellites
- Kinetic ASAT missiles
- Electronic warfare (EW) jamming signals

KEY DEVELOPMENTS IN INDIA:

5. Promoting Indigenous Capability Development: Doctrines push for strategic investments in indigenous satellite navigation systems (like India's NavIC), secure satellite communication, space situational awareness, and space launch capabilities.

6. Leveraging Dual-Use Technologies: MSDs optimize the use of space assets for both civilian and military applications, maximizing return on investment.

INDIA'S MILITARY SPACE DOCTRINE: A WORK IN PROGRESS

India has taken major steps in developing a coherent military space policy, although a formal doctrine is yet to be fully articulated.

Institution/Program	Description
Mission Shakti (2019)	First successful demonstration of ASAT capability
Defence Space Agency (DSA)	Operationalizes space warfare strategies; coordinates with tri-services
Defence Space Research Organisation (DSRO)	Focuses on space-based warfare R&D
Integrated Space Cell (2008)	First institutional mechanism for defense-space integration
GSAT-7 Series Satellites	Dedicated military satellites for Navy, Army, and IAF
NavIC System	India's indigenous satellite navigation system; alternative to GPS
SRO-DRDO Cooperation	Collaboration in ASAT, surveillance, and communication technologies

India emphasizes "non-weaponization of outer space" in diplomatic forums but is clearly building deterrence and strategic autonomy through hard capabilities.

COMPARISON TABLE

Country	ASAT Capability	Military Doctrine	Dedicated Command	Satellite Navigation	Key Focus
USA	Yes	Yes (Space Force)	Yes	GPS	Space dominance
China	Yes	Implicit	Yes (PLA SSF)	Beidou	Counterspace warfare
Russia	Yes	Legacy-focused	Yes	GLONASS	Jamming, EW
India	Yes	In development	Partial (DSA/DSRO)	NavIC	Deterrence, integration
France	No	Yes	Yes	EU Galileo	Surveillance, resilience

UNITED STATES

1. Established U.S. Space Force in 2019.
2. Operates over 160 military satellites for navigation, communication, and missile tracking.
3. Follows the 2020 Defense Space Strategy, focusing on space dominance and proactive deterrence.
4. Uses the X-37B spaceplane for classified operations.
5. Deep integration with allies through NORAD, NATO, and Five Eyes.

CHINA

1. Operates a comprehensive military space program under the PLA Strategic Support Force (SSF).
2. Conducts frequent counterspace activities including co-orbital ASAT systems.
3. Developed Beidou Navigation System, rival to GPS and NavIC.
4. Active in quantum communication satellites and AI-driven surveillance.

RUSSIA

1. Maintains legacy space military programs from the Soviet era.
2. Focus on jamming, co-orbital satellites, and missile tracking.
3. Active in cyberwarfare capabilities and GLONASS navigation.

FRANCE

1. Released a military space doctrine (2019) and created Space Command.
2. Focuses on surveillance, laser defense, and cyber resilience in space.

ISRAEL

1. Highly advanced in miniaturized surveillance satellites (e.g., Ofek series).
2. Focus on quick-launch responsive satellite capabilities for regional conflicts.

CHALLENGES IN FRAMING AND IMPLEMENTING AN MSD IN INDIA

1. **Lack of Unified Doctrine:** Multiple agencies like ISRO, DRDO, and the Defence Space Agency (DSA) currently operate with distinct mandates and limited interoperability. The absence of a single, published Military Space Doctrine results in policy fragmentation, duplication of efforts, and delayed decision-making during crises.
2. **Legal Constraints:** India is a signatory to the Outer Space Treaty (OST) 1967, which prohibits the placement of nuclear weapons and other weapons of mass destruction in orbit. This international legal framework, while promoting peaceful use, constrains the development of offensive counter-space capabilities and limits strategic options in case of conflict.
3. **Budget Constraints:** Military space operations, such as deploying satellite constellations, ASAT programs, and ground control infrastructure, demand substantial and sustained capital investment. Given competing priorities in defense (land, air, maritime), space often receives a smaller allocation, affecting long-term capability-building.
4. **Human Resource Shortage:** There is a critical shortage of personnel trained in space science, orbital mechanics, AI integration, and satellite operations with a military lens. The absence of dedicated military-academic programs and limited collaboration with institutions like IIST or DRDO labs further hampers talent development.
5. **Need for Cyber-Space Integration:** Modern space warfare includes electronic warfare, cyber-attacks on satellite networks, and AI-driven decision systems. India must evolve beyond platform-based thinking to adopt a multi-domain doctrine integrating cyber, space, and electromagnetic operations for synchronized threat response.

THE WAY FORWARD FOR INDIA'S MILITARY SPACE DOCTRINE

1. **Formulation of an Integrated Military Space Doctrine (MSD):** India must institutionalize a comprehensive Military Space Doctrine that

synchronizes the roles of the armed forces, ISRO, and private industry. This doctrine should outline strategic deterrence goals, asset protection, space situational awareness, and response mechanisms. It would serve as the foundational policy for coordinated space security planning and reflect India's commitment to peaceful yet prepared uses of outer space.

2. **Strengthening the Defence Space Agency (DSA):**

The DSA, currently a tri-service body, needs more operational autonomy and budgetary authority to function effectively. Its mandate must evolve from coordination to active development and deployment of military space assets, including small satellites and counter-space technologies. A direct command chain under the Chief of Defence Staff (CDS) can further enhance its strategic focus.

3. **Development of Space Situational Awareness (SSA) Capabilities:**

Building indigenous SSA systems is vital to track, monitor, and predict the behavior of foreign satellites and debris. This includes radar and optical sensors, AI-enabled tracking, and global data fusion centers. Collaboration with nations like France, Japan, and the U.S. can further improve interoperability and early-warning mechanisms.

4. **Indigenous Satellite Constellations for Strategic Communications and Reconnaissance:**

India should accelerate the deployment of satellite constellations such as RISAT, GSAT, and CartoSat for persistent coverage and real-time communication. These assets must be encrypted, jam-resistant, and resilient to cyber threats. Future constellations could be launched in low-Earth orbit (LEO) to ensure redundancy and quicker refresh rates.

5. **Investment in Counterspace and Defensive Technologies:**

India must continue to invest in electronic warfare systems, directed energy weapons (like DEWs), and ASAT capability upgrades to safeguard its orbital infrastructure. Additionally, technologies such as satellite hardening, maneuverability, and cloaking techniques can serve as passive defense against enemy actions.

6. **Public- Private- Academic Collaboration in Military Space Tech:**

To foster innovation and rapid deployment, India should expand the involvement of startups and academic institutions in military space programs through the IN-SPACe and iDEX platforms. Dual-use technology spin-offs can improve both civilian and military capabilities while reducing dependency on foreign vendors.

7. **International Norm-Shaping and Diplomacy:**

India should take the lead in pushing for international treaties that ban space weaponization while securing its national interests. Proposing a No First Placement of Weapons in Space (NFPWS) doctrine or collaborating in forums like CD, UNIDIR, and BRICS can reinforce its image as a responsible space power while hedging against future legal asymmetries.

CONCLUSION

The Military Space Doctrine is no longer an abstract policy choice; it is a strategic necessity in an increasingly contested domain. With global powers racing toward space militarization, India must evolve from ad hoc measures to a coherent doctrine that aligns its strategic, scientific, and ethical imperatives. A robust MSD enables India to deter adversaries, protect its satellites, and ensure uninterrupted national services—ranging from communication to weather forecasting to defense intelligence. As technology blurs boundaries between civilian and military roles, India's space doctrine must be forward-looking, resilient, and rooted in strategic autonomy and international peace.

**INDIAN CYBER CRIME
COORDINATION CENTRE
(I4C): SAFEGUARDING
INDIA'S CYBERSPACE**



WHY IN THE NEWS?

The Indian Cyber Crime Coordination Centre (I4C) was in the news recently for celebrating its first Foundation Day on 10th September 2024 at Vigyan Bhavan, New Delhi. Union Home Minister Amit

Shah launched four major initiatives to strengthen India's fight against cybercrime. These include the Cyber Fraud Mitigation Centre (CFMC), the Samanvay Platform for joint investigations, the Cyber Commandos program to train 5,000 digital specialists, and a National Suspect Registry. He emphasized that cybersecurity is now a core aspect of national security and requires coordinated action by all stakeholders. The new criminal laws also contain stronger provisions for tackling cybercrime. A new logo, vision, and mission for I4C were also unveiled. These efforts mark a significant step in India's pursuit of a safer digital ecosystem.



WHAT IS I4C

The Indian Cyber Crime Coordination Centre (I4C) was conceptualized and launched by the Ministry of Home Affairs (MHA) in January 2020. The core objective is to create an effective mechanism for detecting, preventing, investigating, and prosecuting cybercrimes in a coordinated manner across the country. With the rapid increase in cybercrime incidents and the growing complexity of digital threats, a centralized system became essential. I4C is headquartered in New Delhi and works on a seven-pronged framework to ensure a robust, proactive, and multi-stakeholder approach. These pillars are:

1. **Threat Analytics Unit (TAU):** For detecting new cyber threats.
2. **Joint Cybercrime Investigation Platform:** To enable collaborative investigations.
3. **Cyber Forensic Lab Ecosystem:** For digital evidence collection and analysis.
4. **Cybercrime Ecosystem Management:** Connecting stakeholders from law, tech, and finance.

5. **Cybercrime Reporting Portal:** User-friendly interface for victims.
6. **Capacity Building Unit:** For training police and judiciary.
7. **R&D in Cybercrime Technologies:** To stay ahead in the cyber arms race.

The Centre also encourages innovation in detecting digital frauds and promotes the development of indigenous tools and forensic technologies.

FUNCTIONS OF I4C

1. **Central Coordination:** It acts as the nodal point for communication and coordination between central agencies, state police, and international law enforcement bodies. This ensures that cross-border and multi-jurisdictional cybercrime cases are dealt with effectively.
2. **Reporting Infrastructure:** Through the National Cybercrime Reporting Portal (cybercrime.gov.in), it provides a one-stop platform where individuals can report online financial frauds, cyberbullying, child pornography, and other offences. The portal categorizes cases and routes them to respective state units.
3. **Data Analytics and Threat Mapping:** I4C uses advanced analytics and AI-driven tools to analyze complaint data, identify hotspots, and detect emerging cybercrime patterns. This enables faster preventive actions.
4. **Capacity Building:** I4C has trained over 35,000 officers so far through classroom and e-learning modes. It develops modular training programs based on the latest cybercrime trends, tools, and tactics.
5. **Technological Support:** It supports state police with digital forensic kits, investigation tools, and real-time intelligence. It also runs workshops and simulation exercises to test preparedness.
6. **Public Awareness and Outreach:** It coordinates awareness campaigns like "Cyber Jaagrookta Diwas," broadcasts public messages, and distributes educational content to schools and colleges.

POWERS OF I4C

Though I4C does not possess direct investigative or law enforcement powers like a police agency, its influence and authority in shaping India's cyber security framework are substantial.

- 1. Strategic Authority:** I4C acts as the strategic apex body for cybercrime management in India. It develops national-level guidelines and helps in the formulation of cybercrime policies and protocols.
- 2. Technical Expertise:** It provides technical support to law enforcement by offering tools for digital forensics, real-time surveillance, and

data analysis. The Centre helps bridge the tech gap for states lacking cyber capabilities.

- 3. Policy Advisory Role:** I4C advises the government on amending existing laws and formulating new rules to tackle modern threats like ransomware, AI misuse, and dark web activities.
- 4. Inter-Agency Linkage:** It liaises with CERT-In, RBI, telecom companies, and foreign cyber agencies to exchange information. It plays a critical role in coordinating responses during widespread cyberattacks or data breaches.
- 5. Cyber Forensic Infrastructure:** I4C has helped set up specialized labs in Hyderabad, Pune, and other cities where digital evidence is collected, preserved, and analyzed using cutting-edge tools.

FINANCIAL FRAUDS IN RECENT TIMES

Digital financial fraud has emerged as one of the most common and damaging forms of cybercrime in India. From UPI frauds to crypto scams, the landscape of financial cybercrime has rapidly evolved.

Year	Reported Cases	Amount Involved (INR Crore)	Top Methods
2021	51,000	560	Phishing, Fake KYC, Loan scams
2022	84,000	980	UPI frauds, Ponzi schemes, investment scams
2023	1,25,000	1,500	Vishing, job frauds, romance scams
2024	1,95,000	2,200	Remote Access scams, crypto frauds
2025 (Till Apr)	62,000	680	OTP scams, AI-generated voice impersonation

These figures reflect only reported cases; many go unreported due to lack of awareness or stigma. The shift toward AI-generated voice and video frauds is a worrying trend, where even well-informed users are deceived.



FINANCIAL FRAUD AS A CYBER CRIME

Financial fraud is among the most damaging forms of cybercrime because it directly impacts the live-

lihood of individuals and businesses. With digital payments becoming the norm, vulnerabilities have also increased.

1. Fraudsters commonly impersonate bank officials or tech support agents to trick people into sharing OTPs or clicking malicious links. The rise of social engineering has made cybercrime more psychological than technical.
2. E-commerce platforms are often misused to commit fake sales, bogus refunds, and payment diversions. Fraudsters also use social media ads to lure users into investing in fake schemes.
3. Fraud through QR codes, fake payment apps, and phishing links continues to rise. Criminals

also exploit crypto platforms and create fake trading apps that appear genuine but are designed to siphon funds.

4. Law enforcement often faces challenges in tracing these frauds due to international routing of transactions, use of VPNs, and fake identities.

WHY MORE PREVALENCE IN INDIA?

Cyber financial frauds have found fertile ground in India due to several structural, social, and technological reasons:

1. **Massive Digital Adoption:** India is the world's fastest-growing digital economy, but with over 900 million internet users, digital hygiene is still poor. Many users are unaware of basic safety practices like not sharing OTPs or using two-factor authentication.
2. **Lack of Digital Literacy:** Especially in rural and semi-urban areas, people are prone to falling for job scams, lottery frauds, and phishing emails. Cyber education has not kept pace with digital penetration.
3. **Smartphone Dependency:** Financial services are now app-based, and mobile devices are more vulnerable than desktops. A single mistake—such as downloading a fake app—can compromise entire accounts.
4. **Low Reporting and Prosecution:** Victims often feel embarrassed and don't report incidents. Even when they do, police stations may lack the tech expertise to investigate, leading to poor conviction rates.
5. **Language-Localized Scams:** Fraudsters now operate in regional languages, making it easier to gain trust and deceive users. Scammers also impersonate known individuals using AI-generated voices.
6. **Cheap Access to Technology for Criminals:** With inexpensive smartphones, SIM cards, and easily available VPN services, even small-time criminals can execute sophisticated scams. The cost of entry into cybercrime is low, but the returns are often high.

7. **Organized Cybercrime Networks:** Many frauds are not isolated events but part of large-scale, well-organized scam call centers. These networks operate with trained agents, scripts, and fake digital identities, often across multiple states or countries.

8. **Inadequate Cybersecurity Infrastructure:** Many small businesses and institutions don't invest in robust cybersecurity measures. Their weak systems are easy targets for ransomware, phishing, and financial frauds.

GOVERNMENT INITIATIVES TO CONTAIN CYBER CRIMES

1. **I4C Initiative:** Centralizes cybercrime detection and response efforts across India, ensuring consistency and expertise in handling cases. It has already led to thousands of fraudsters being identified and tracked.
2. **Cybercrime Reporting Portal:** Offers victims a simple, quick way to report crimes, with multilingual support and categorized complaint types. It helps create a national database of cyber fraud patterns.
3. **Capacity Building Programs:** The government regularly organizes workshops, certifications, and simulations for police officers, prosecutors, and judges to improve their cybercrime handling skills.
4. **Public Campaigns:** Initiatives like "Stay Safe Online," "Cyber Swachhta Kendra," and "Digital Suraksha" aim to educate the public through media, infographics, and influencer campaigns.
5. **Partnership with Private Sector:** Collaborates with banks, payment companies, telecom providers, and social media firms to share threat intelligence and shut down fraudulent channels quickly.
6. **Legislation:** New rules under the IT Act, as well as the Digital Personal Data Protection Act, 2023, aim to strengthen privacy and accountability mechanisms.

WAY FORWARD / RECOMMENDATIONS

- 1. Revise and Strengthen Laws:** Cyber laws must be revised regularly to tackle new-age threats like deepfakes, AI-powered scams, and blockchain-based fraud.
- 2. Localized Cyber Literacy Campaigns:** Governments and NGOs should work together to spread cybersecurity knowledge in local languages through schools, panchayats, and mobile vans.
- 3. Specialized Cybercrime Units:** Every district police headquarters should have a well-equipped cyber cell with trained staff and access to forensic labs.
- 4. Faster Judicial Redress:** Creation of dedicated cybercrime courts to reduce case backlogs and improve conviction rates. Victims deserve timely justice.
- 5. International Partnerships:** Strengthen global cybercrime treaties and data-sharing agreements, especially with countries where scam centers operate.
- 6. Mandatory Cybersecurity Protocols:** Organizations handling sensitive data should follow minimum standards and be penalized for negligence.
- 7. Cyber Insurance Ecosystem:** Promote policies that help victims recover from financial losses and encourage more proactive protection measures.

CONCLUSION

The Indian Cyber Crime Coordination Centre (I4C) stands at the heart of India's cybersecurity strategy, helping to create a safe and secure digital environment. In the digital age, where every citizen is a potential target, I4C plays the dual role of protector and enabler. While the challenges are complex and ever-evolving, India's commitment to fighting cybercrime through innovation, legislation, and public participation remains strong. A safer

digital India is not just the responsibility of the government, but a collective mission involving citizens, companies, and institutions.

PRELIMS QUESTIONS

1. With reference to gold smuggling and organized crime in India, consider the following statements:

1. Gold smuggling in India is primarily driven by high import duties and tax evasion.
2. The Enforcement Directorate (ED) is the primary agency responsible for investigating gold smuggling cases.
3. Gold smuggling networks are often linked to money laundering, drug trafficking, and terrorist financing.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

2. Consider the following statements regarding the Narcotic Drugs and Psychotropic Substances (NDPS) Act of 1985:

1. It allows for preventive detention of habitual drug offenders.
2. It provides for the regulation of controlled substances used in the manufacture of narcotic drugs.
3. It does not apply to the cultivation of opium for medical purposes.

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

3. The Outer Space Treaty (OST) of 1967 prohibits which of the following?

1. Deployment of nuclear weapons in space
2. Militarization of celestial bodies
3. Peaceful use of outer space

Select the correct answer using the codes below:

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

4. The Samanvay Platform is aimed at:

- A. Promoting cyber education in schools
- B. Facilitating joint cybercrime investigations
- C. Regulating fintech applications
- D. Tracking cryptocurrency usage

ANSWER

1. B	2. A	3. D	4. B
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MAINS QUESTIONS

1. How does gold smuggling contribute to organized crime in India? Discuss the challenges it poses to national security and suggest measures to combat this issue.

(250 words, 15marks)

2. Drug trafficking poses a serious threat to India's national security, youth, and social fabric. Critically examine the challenges in combating drug trafficking and suggest a comprehensive strategy to tackle the menace.

(250 words, 15marks)

3. Discuss the implications of a Military Space Doctrine for India's strategic autonomy and its obligations under international space treaties like the Outer Space Treaty (1967).

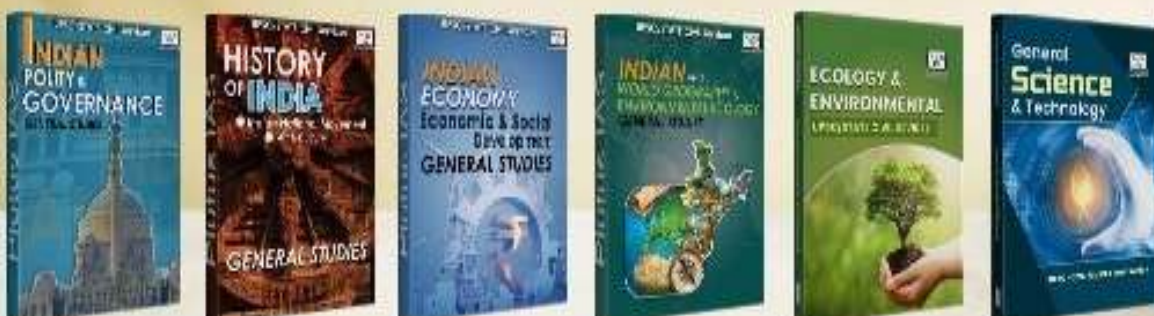
(250 words, 15 marks)

4. Discuss the rising trend of financial frauds as a form of cybercrime in India. What are the key challenges in tackling these crimes, and how can the government address them?

(250 words, 15marks)

PLUTUS IAS

GENERAL STUDIES BOOKS



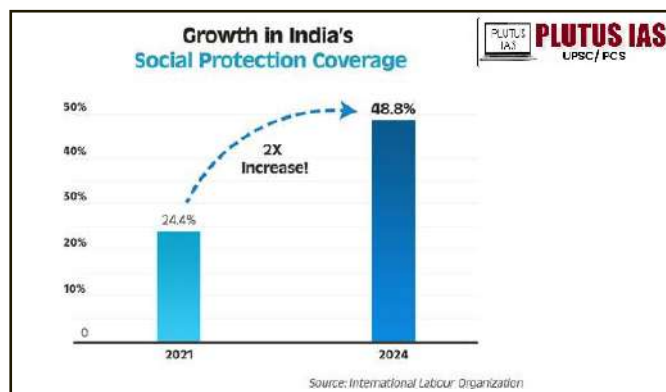


INDIA'S SOCIAL SECURITY COVERAGE DOUBLES



WHY IN THE NEWS?

India's social protection coverage has seen a remarkable rise, doubling from 24.4% in 2021 to 48.8% in 2024, as per the International Labour Organization's (ILO) World Social Protection Report (WSPR) 2024-26. This significant expansion is attributed to key government initiatives that have broadened access to health insurance, pensions, and employment support for millions. According to the Ministry of Labour and Employment, nearly 920 million people (65% of the population) are now covered by at least one form of social protection, marking a major milestone in India's welfare landscape. This progress has also contributed to a 5-percentage point increase in global social protection coverage, highlighting India's role in shaping international welfare outcomes.



SOCIAL SECURITY COVERAGE IN INDIA

The World Social Protection Report is a comprehensive assessment published periodically by the International Labour Organization (ILO), a

specialised agency of the United Nations dedicated to labour rights and social justice. The report evaluates social protection systems globally, examining their coverage, effectiveness, and progress in ensuring social security for diverse populations. By offering a detailed analysis of policies and trends, it serves as a key resource for governments, policymakers, and researchers working towards stronger and more inclusive welfare systems.



The 2024–26 edition of the report is centred on universal social protection for climate action and a just transition. For the first time, it incorporates

trend data, providing a more dynamic perspective on global progress. It presents an extensive set of global, regional, and country-level statistics on social protection coverage, benefits provided, and public expenditure. Additionally, a regional companion report for Asia and the Pacific supplements the global findings by offering a deeper analysis of social protection developments in the region. This companion report highlights key challenges, priorities, and the intersection of social protection and climate action, considering the unique socio-economic and environmental conditions of Asia and the Pacific.

EXPANDING SOCIAL SECURITY

1. **Ayushman Bharat:** As of March 26, 2025, 39.94 crore Ayushman Cards have been issued under Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), offering free health coverage of up to ₹5 lakh per family. The scheme is accessible at 24,810 empanelled hospitals nationwide.
2. **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY):** Launched to address economic hardships caused by the COVID-19 pandemic, the scheme provides free food grains to vulnerable populations. As of December 2024, 80.67 crore people are receiving free food grains, close to the intended coverage of 81.35 crore beneficiaries.
3. **EShram Portal:** Introduced on August 26, 2021, to create a National Database of Unorganised Workers (NDUW), this initiative offers a Universal Account Number (UAN) to workers for enhanced social security. As of March 3, 2025, over 30.68 crore unorganised workers have registered, with 53.68% of them being women.
4. **Atal Pension Yojana (APY):** Launched on May 9, 2015, APY aims to provide universal social security, particularly for the poor, underprivileged, and unorganised sector workers. Along with Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJ-BY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY), it strengthens the country's social security system. As of December 31, 2024, 7.25 crore beneficiaries have enrolled in APY, with a total accumulated corpus of ₹43,369.98 crore.
5. **Poverty Reduction:** Over the past decade, 24.8 crore people have escaped multi-dimensional poverty due to several social security measures, reflecting the far-reaching impact of government interventions.

IMPORTANCE OF SOCIAL SECURITY

1. **Financial Protection Against Uncertainties:** Provides financial assistance during retirement, unemployment, disability, or illness. Helps individuals and families sustain their livelihoods in difficult times.
2. **Poverty Reduction and Economic Stability:** Protects vulnerable populations from falling into extreme poverty. Encourages economic stability by ensuring basic income security.
3. **Access to Quality Healthcare:** Reduces financial burden on families by covering medical expenses. Government schemes like Ayushman Bharat provide free health coverage to millions.
4. **Food Security for Vulnerable Populations:** Ensures access to essential nutrition through programs like Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY). Reduces malnutrition and improves overall public health.
5. **Empowerment of Unorganised Workers:** Initiatives like EShram Portal provide social security coverage to unorganised workers. Ensures protection and benefits for daily wage earners, gig workers, and self-employed individuals.
6. **Encourages Savings and Retirement Planning:** Schemes like Atal Pension Yojana (APY) and Employees' Provident Fund Organisation (EPFO) help people save for the future. Ensures financial independence in old age.
7. **Promotes Inclusive Growth and Development:** Helps bridge the gap between different socio-economic groups. Ensures that all citizens, regardless of income level, have access to essential services.
8. **Strengthens National Productivity:** A healthy and financially secure population contributes to a stronger economy. Reduces dependency on government aid and promotes self-sufficiency.

- 9. International Recognition and Development Goals:** Aligns with United Nations Sustainable Development Goals (SDGs), focusing on poverty reduction, healthcare, and decent work. Strengthens India's position as a socially responsible and progressive nation.

ISSUE RELATED TO SOCIAL SECURITY IN INDIA

- 1. Limited Coverage & Exclusion Errors:** Many unorganised workers, migrant labourers, and daily wage earners lack access to formal social security due to inadequate documentation and identification issues.
- 2. Fragmented Implementation:** Multiple schemes under different ministries create inefficiencies, duplication, and difficulties in tracking beneficiaries due to a lack of centralized data.
- 3. Financial Constraints:** Insufficient funding and delayed disbursements lead to inadequate benefits and hinder the effective implementation of welfare programs.
- 4. Inadequate Pension & Insurance Coverage:** Many informal workers lack pension (EPFO, APY) and insurance (PMJJBY, PMSBY) coverage due to low awareness and accessibility.
- 5. Challenges in eShram & Aadhaar Integration:** Digital illiteracy, lack of internet access, and Aadhaar authentication issues prevent many unorganised workers from registering and availing benefits.
- 6. Corruption & Leakages:** Middlemen, bureaucratic delays, and ghost beneficiaries cause fund leakages in schemes like MGNREGA and food distribution programs.
- 7. Inadequate Support for Migrant Workers:** Limited portability of welfare benefits across states restricts migrant workers' access to ration, healthcare, and employment schemes despite ONORC.
- 8. Low Awareness & Digital Divide:** Many, especially in rural areas, remain unaware of entitlements due to digital illiteracy, language barriers, and poor access to technology.

WAY FORWARD

- 1. Develop a Universal Social Security System:** Create an inclusive framework ensuring seamless and portable benefits across all employment sectors.
- 2. Strengthen Digital & Data Infrastructure:** Establish a centralized database for efficient tracking, reducing duplication, and ensuring transparency.
- 3. Enhance Financial Support & Timely Disbursement:** Increase budgetary allocations and ensure the prompt release of funds to improve benefit delivery.
- 4. Expand Pension & Insurance Coverage:** Boost awareness and simplify access to pension (EPFO, APY) and insurance (PMJJBY, PMSBY) schemes.
- 5. Improve eShram & Aadhaar Accessibility:** Address digital literacy challenges, provide offline registration options, and resolve authentication issues.
- 6. Curb Corruption & Leakages:** Strengthen monitoring mechanisms, promote transparency, and use technology to eliminate fund misappropriation.
- 7. Support Migrant Workers with Portable Benefits:** Strengthen ONORC and other welfare schemes to ensure accessibility across states.
- 8. Bridge the Digital & Awareness Gap:** Conduct outreach programs, improve internet connectivity, and offer multilingual, user-friendly platforms.

CONCLUSION

India's strides in expanding social protection reflect a strong commitment to inclusive welfare and economic security. The doubling of coverage, as highlighted in the International Labour Organization's World Social Protection Report 2024–26, underscores the impact of key initiatives such as Ayushman Bharat, PMGKAY, and the eShram portal in ensuring financial stability, healthcare, and food security for millions. The launch of the Social Protection Data Pooling Exercise further strengthens these efforts by enhancing data-driven policymaking and addressing gaps in existing assessments. As India continues to refine its social

security framework in collaboration with the ILO, its approach serves as a model for balancing welfare expansion with economic growth.

NATIONAL FOOD SECURITY AND NUTRITION MISSION



WHY IN THE NEWS?

During 2024-25, the National Food Security Mission (NFSM) has been renamed as National Food Security & Nutrition Mission (NFSNM), and the Department of Agriculture and Farmers Welfare (DA&FW) is implementing NFSNM to increase the production of pulses, Nutri cereals, rice, wheat and coarse cereals in the country. Under NFSNM, the incentives are provided to the farmers, through the States/UTs, on crop production and protection technologies, cropping system-based demonstrations, production & distribution of certified seeds of newly released varieties/hybrids, integrated nutrient and pest management techniques, capacity building of farmers through training during cropping season etc.

WHAT IS THE NATIONAL FOOD SECURITY AND NUTRITION MISSION?

Launched in 2007, NFSM is a centrally sponsored scheme aimed at increasing the production of rice, wheat, pulses, coarse cereals, and nutri cereals. It focuses on enhancing productivity, restoring soil fertility, creating employment, and boosting farm profits. Strategies include quality seed distribution, technology demonstrations, and farm machinery support.

POSHAN Abhiyaan (National Nutrition Mission): Launched in 2018, this mission aims to improve nutrition among children, pregnant women, and lactating mothers. It targets reducing stunting, undernutrition, anaemia, and low birth weight by promoting inter-ministerial collaboration and community engagement.

KEY OBJECTIVE OF NATIONAL FOOD SECURITY AND NUTRITION MISSION

1. **Increased Production:** Boosts rice, wheat, pulses, and coarse cereals through expanded cultivation and improved productivity.

2. **Sustainable Practices:** Promotes eco-friendly farming for long-term food security.
3. **Soil Health:** Focuses on restoring soil fertility for better crop yields.
4. **Farmer Empowerment:** Enhances farm incomes to improve livelihoods and food security.
5. **Targeted Approach:** Directs resources to high-potential districts for maximum impact.
6. **Nutritional Security:** Encourages cultivation and consumption of diverse, nutritious crops.

MAJOR COMPONENTS AND IMPLEMENTATION STRATEGY

1. **Defining Goals & Objectives:** Align with vision and mission. Set SMART goals and define KPIs to measure success.
2. **Research & Analysis:** Conduct SWOT and competitive analysis. Assess financial, human, and technological resources.
3. **Risk Management:** Identify potential risks and assess impact. Develop mitigation strategies to minimize disruptions.
4. **Milestones & Timelines:** Set a phased timeline with key milestones. Monitor progress and adjust as needed.
5. **Roles & Responsibilities:** Clearly define tasks and accountability. Delegate based on expertise.
6. **Resource Allocation:** Ensure budget, workforce, and tech support. Optimize resources and plan for contingencies.
7. **Communication & Engagement:** Maintain clear communication with stakeholders. Gather feedback and foster engagement.
8. **Monitoring & Evaluation:** Track performance against KPIs. Adapt and continuously improve the strategy.

KEY ACHIEVEMENTS OF THE MISSIONS

1. **Increased Food Production:** Boosted yields of rice, wheat, pulses, and coarse cereals, ensuring national food security.
2. **Sustainable Agriculture:** Promoted climate-smart farming, water conservation, and soil fertility management.

3. **Farmer Support:** Supplied quality seeds, fertilizers, machinery, and training to enhance productivity.
4. **Regional Development:** Focused on backward districts, expanded irrigation, and improved access to resources.
5. **Employment & Rural Growth:** Created jobs, strengthened agro-industries, and improved farmer incomes.
6. **Technology & Innovation:** Encouraged modern farming techniques, precision agriculture, and digital tools.
7. **Nutritional Security:** Promoted bio-fortified crops and diversified food production to improve diets.
8. **Policy & Infrastructure Development:** Strengthened supply chains, warehousing, and market access for farmers.

WHY NUTRITION COMPONENTS IS ADDED

The inclusion of nutrition in the National Food Security & Nutrition Mission (NFSNM) acknowledges the critical link between food security and nutritional well-being. Despite increased food grain production, malnutrition, micronutrient deficiencies, and diet-related health issues persist in India. By integrating nutrition-focused interventions, the mission aims to:

1. **Improve Dietary Quality:** Encourage bio-fortified and nutrient-rich crop production.
2. **Reduce Malnutrition:** Address stunting, undernutrition, and anaemia, especially in women and children.
3. **Promote Diversified Cropping:** Shift focus from staple grains to pulses, Nutri-cereals, and vegetables.
4. **Strengthen Food Systems:** Improve access to nutritious food through better supply chains and awareness programs.

WHAT ARE THE ISSUES OF FOOD SECURITY AND NUTRITION IN INDIA?

1. **High Malnutrition Rates:** Despite food availability, stunting, undernutrition, and anaemia remain major concerns.

2. **Dietary Imbalance:** Over-reliance on staple grains leads to micronutrient deficiencies (iron, zinc, vitamin A).
3. **Post-Harvest Losses:** Poor storage and distribution result in food wastage and supply gaps.
4. **Climate Change Impact:** Unpredictable weather affects crop production and agricultural sustainability.
5. **Economic & Social Inequality:** Limited access to nutritious food for marginalized and low-income groups.
6. **Food Safety & Quality Issues:** Adulteration, pesticide overuse, and lack of proper food fortification.

WAY FORWARD

1. **Diversify Agriculture:** Promote climate-resilient crops, organic farming, and smart irrigation.
2. **Improve Food Distribution:** Strengthen PDS, reduce post-harvest losses, and support local food production.
3. **Enhance Nutrition Programs:** Expand POSHAN Abhiyaan, encourage food fortification, and raise awareness.
4. **Strengthen Policies & Farmer Support:** Ensure inter-sectoral coordination, support small farmers, and enforce food safety.
5. **Leverage Technology:** Use AI, blockchain, and digital tools for efficient monitoring and farmer education.

CONCLUSION

The transition from NFSM to NFSNM reflects a holistic approach to food security, integrating both agricultural growth and nutritional well-being. While India has made significant progress in increasing food production, addressing malnutrition and ensuring dietary diversity remain key challenges. Strengthening sustainable farming, efficient food distribution, and awareness programs will be crucial for achieving long-term food and nutrition security.

INDIA'S FIGHT AGAINST ANAEMIA



WHY IN THE NEWS?

India, home to the world's largest adolescent population, continues to battle high rates of anaemia, a major public health challenge affecting women, children, and adolescents. Recently, anaemia has been in focus due to renewed efforts under the Anaemia Mukh Bharat (AMB) initiative, which aims to tackle the issue through iron-folic acid supplementation, deworming, fortified foods, and behaviour change campaigns. With its integrated, community-based approach linking maternal, child, and adolescent health, AMB is gaining attention as a global model for tackling nutritional anaemia. The government's emphasis on scaling up this evidence-driven programme reflects its critical role in breaking the cycle of malnutrition and improving national health outcomes.

ANAEMIA STATUS IN INDIA AND GLOBALLY

WHAT IS ANAEMIA?

Anaemia is a medical condition in which the number of red blood cells (RBCs) or the haemoglobin concentration within them is lower than normal. Haemoglobin is a protein in red blood cells responsible for carrying oxygen from the lungs to the rest of the body. When haemoglobin levels drop, the body's ability to transport oxygen decreases, leading to fatigue and other symptoms.

KEY POINTS:

- 1. Primary cause:** Iron deficiency (Iron Deficiency Anaemia - IDA).
- 2. Other nutritional causes:** Deficiency of folate, vitamin B12, and vitamin A.
- 3. Non-nutritional causes:** Blood loss (e.g., menstruation, ulcers), infections (like malaria), chronic diseases, genetic conditions (like thalassemia), and exposure to toxins (e.g., fluorosis).

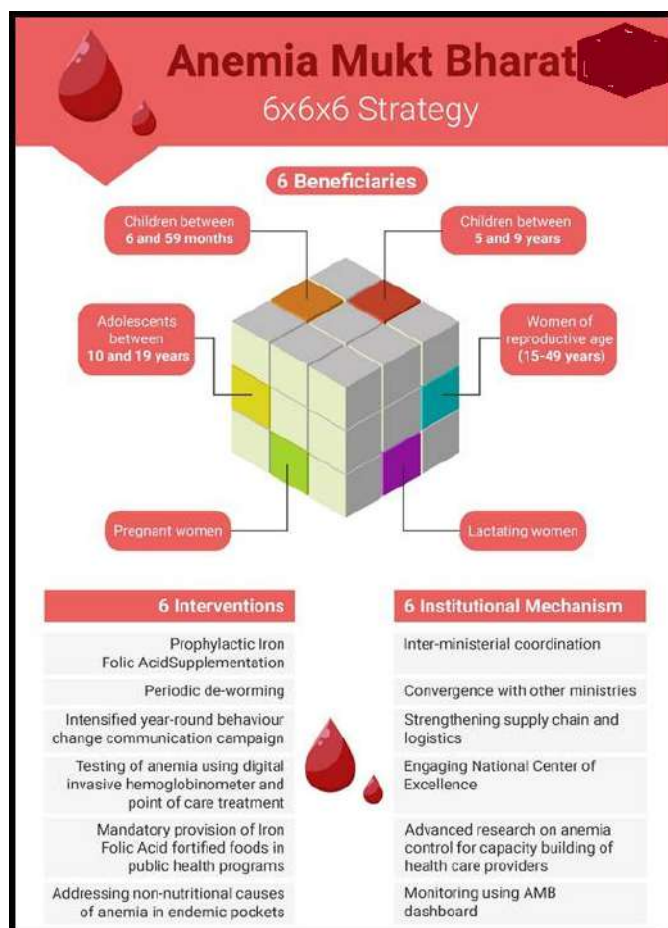
Aspect	Global Status	India Status
1. Overall Prevalence	~500 million women (15–49 yrs) and 269 million children (under 5) affected	Among the highest global burden of anaemia
2. Women Affected (2019)	30% of non-pregnant and 37% of pregnant women had anaemia	57% of women (15–49 yrs) anaemic as per NFHS-5
3. Children Affected (2019)	269 million children under 5 had anaemia	67% of children (6–59 months) are anaemic (NFHS-5)
4. Main Cause	Iron Deficiency Anaemia (IDA) most common	Nutritional causes (iron, folate, B12, Vitamin A) + non-nutritional (e.g., malaria)
5. Impact on Health	Cognitive delays, maternal and child mortality, reduced productivity	Similar impacts: impaired development, LBW babies, perinatal complications
6. High-Risk Groups	Women, young children, and pregnant women	Adolescent girls, pregnant/lactating women, and young children
7. Progress and Challenges	Global decline is slow; targets for 2030 were set by the WHO	Prevalence increased despite efforts; requires intensified action
8. Government Response	WHO guidelines and country-specific programs	Anaemia Mukh Bharat (2018) with a 6x6x6 strategy targeting all age groups

Ministry of Information and Broadcasting
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Status of Anemia in India as per the National Health Survey – 5 (2019-2021)

Groups	Anaemia Rate (%)
Men (15–49 years)	25%
Women (15–49 years)	57%
Adolescent boys (15–19 years)	31.1%
Adolescent girls (15–19 years)	59.1%
Pregnant women (15–49 years)	52.2%
Children (6–59 months)	67.1%



WHAT ARE ITS SYMPTOMS?

Anaemia manifests with symptoms such as fatigue, diminished physical work capacity, and shortness of breath. It serves as an indicator of poor nutrition

and various health issues. Common and non-specific symptoms of anaemia include tiredness, dizziness or feeling light-headed, cold hands and feet, headache and shortness of breath, particularly during exertion.

REASON FOR MORE ANAEMIA IN INDIA

Nutritional Causes

- 1. Iron Deficiency:** Most common cause due to low intake of iron-rich foods (like leafy greens, lentils, meats). Iron loss due to menstruation, pregnancy, and parasitic infections worsens the deficiency.
- 2. Deficiency of Other Micronutrients:** Low levels of folate, vitamin B12, and vitamin A also contribute to anaemia. These nutrients help in the production and maintenance of healthy red blood cells.
- 3. Poor Dietary Diversity:** Heavy dependence on cereal-based diets with low bioavailable iron and low consumption of fruits, vegetables, and animal protein.

NON-NUTRITIONAL CAUSES

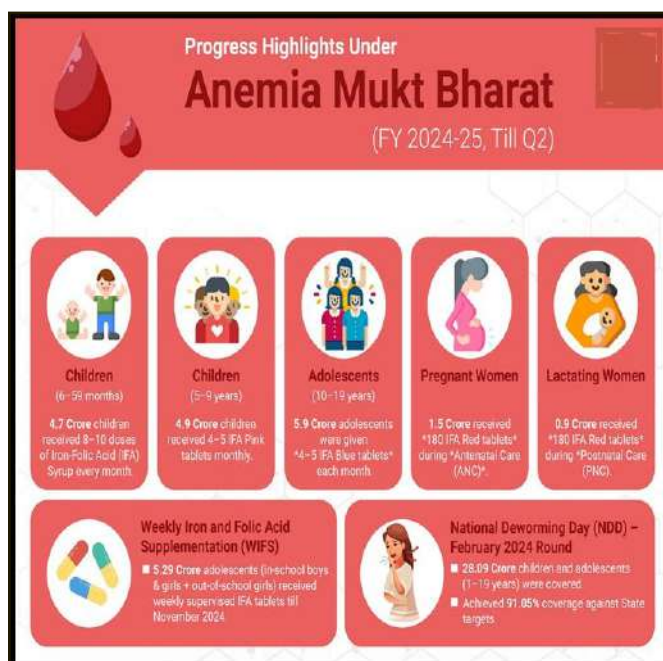
- 1. Parasitic Infections & Deworming Gaps:** Worm infestations, particularly in children, lead to chronic blood loss and poor iron absorption.
- 2. Frequent Pregnancies & Early Marriages:** Short birth intervals and teenage pregnancies increase iron demand, depleting iron stores in women.
- 3. Inadequate Maternal Health Services:** Limited antenatal care, poor iron-folic acid compliance, and gaps in deworming & supplementation programs.
- 4. Lack of Awareness & Behavioural Barriers:** Myths, taboos, and lack of awareness about iron-rich diets and supplements hinder prevention efforts.
- 5. Genetic and Chronic Disorders:** Diseases like thalassemia, sickle cell anaemia, and chronic kidney disease affect haemoglobin levels.

GOVT INITIATIVES AND POLICIES TO TACKLE ANAEMIA

- 1. Anaemia Mukh Bharat (AMB):** Launched in 2018 with a 6x6x6 strategy targeting six age groups

through six interventions like IFA supplementation, deworming, fortified food, testing, and awareness.

2. **National Iron Plus Initiative (NIPI):** Provides Iron and Folic Acid (IFA) supplements across the life cycle—from infants to women of reproductive age—via schools, health centres, and Anganwadi workers.
3. **Weekly Iron and Folic Acid Supplementation (WIFS):** Focuses on adolescents (10–19 years), especially school-going children, by giving IFA tablets every week and conducting biannual deworming.
4. **Poshan Abhiyaan (National Nutrition Mission):** Aims to reduce anaemia, stunting, wasting, and undernutrition through convergence between ministries, community engagement, and digital monitoring.
5. **Food Fortification Program:** Mandatory fortification of staple foods (rice, salt, wheat flour) with iron, folic acid, and vitamin B12 in schemes like Mid-Day Meals, ICDS, and PDS.
6. **National Deworming Day (NDD):** Observed twice a year (Feb 10 & Aug 10) to reduce worm infestations in children and adolescents (1–19 years), a major cause of iron loss.
7. **Comprehensive Antenatal Care (ANC):** Pregnant women are provided with daily IFA tablets, deworming, and nutrition counselling as part of their routine health check-ups.
8. **Screening for Genetic Disorders:** Initiatives to detect and manage thalassemia, sickle cell anaemia, and other inherited blood disorders, especially in tribal and high-risk regions.
9. **Behaviour Change Communication (BCC) Campaigns:** Nationwide awareness programs (like “Solid Body, Smart Mind”) promote healthy eating, IFA compliance, menstrual hygiene, and delayed early pregnancies.



CHALLENGES IN TACKLING ANAEMIA

1. **Poor Dietary Diversity:** The Majority of the population, especially in rural areas, depends on

cereal-based diets that are low in iron and other essential micronutrients. Low consumption of animal-source foods, fruits, and vegetables limits iron absorption.

2. **Low Compliance with Iron-Folic Acid (IFA) Supplementation:** Irregular intake due to side effects (nausea, constipation), lack of awareness, or non-availability of tablets. Stigmas or myths around IFA tablets in some communities.
3. **Inadequate Health Infrastructure:** Limited availability of trained health workers, point-of-care diagnostic kits, and regular stock of supplements in remote or tribal areas. Weak follow-up mechanisms.
4. **High Prevalence of Worm Infestation:** Poor sanitation, lack of deworming awareness, and low toilet coverage lead to intestinal worm infections that cause chronic blood loss.
5. **Early Marriage and Frequent Pregnancies:** Teenage pregnancies and short birth intervals increase iron demands and reduce women's nutrient reserves, making them more anaemic.
6. **Inadequate Antenatal and Postnatal Care:** Many women miss ANC visits or don't complete the full course of supplements. Poor follow-up for postnatal IFA consumption and nutrition counselling.
7. **Limited Awareness and Behavioural Barriers:** Lack of knowledge about iron-rich foods, appropriate cooking methods (e.g., using iron utensils), and dietary habits that enhance or inhibit iron absorption.
8. **Underreporting and Poor Monitoring:** Inadequate real-time data, fragmented health records, and delayed reporting affect timely intervention. Limited use of digital tools in some regions.
9. **Non-Nutritional Causes Often Neglected:** Conditions like malaria, thalassemia, fluorosis, and chronic diseases that also cause anaemia are not adequately screened or addressed in many programs.

RECOMMENDATION

1. **Enhance Nutritional Interventions:** Promote dietary diversification through awareness programs and kitchen gardens. Encourage consumption of iron-rich and fortified foods, especially in school and Anganwadi meals.
2. **Strengthen IFA Supplementation and Deworming:** Ensure uninterrupted supply of quality IFA tablets and deworming drugs. Address compliance issues through community-based counselling and follow-up.
3. **Invest in Health Infrastructure:** Train more frontline workers and ensure last-mile delivery of services in remote areas. Equip health centres with diagnostic kits and point-of-care anaemia testing tools.
4. **Improve Antenatal and Adolescent Care:** Ensure universal ANC coverage, postnatal care, and early anaemia detection. Expand school health programs for adolescents, especially in rural and tribal areas.
5. **Behaviour Change Communication (BCC):** Intensify awareness campaigns on nutrition, menstrual hygiene, delayed pregnancy, and iron supplementation. Use local influencers, digital platforms, and community mobilisation for behaviour change.
6. **Screening and Management of Genetic Disorders:** Conduct routine screening for thalassemia, sickle cell anaemia, and other conditions in high-risk groups. Integrate with state health schemes and ensure follow-up treatment.
7. **Data-Driven Monitoring and Accountability:** Use real-time data tracking and dashboards for programme effectiveness. Promote inter-ministerial convergence and accountability mechanisms under Poshan Abhiyaan.

CONCLUSION

Anaemia remains one of India's most persistent public health challenges, especially among women, children, and adolescents. Despite multiple initiatives, progress has been slow due to a complex interplay of nutritional, socio-economic,

and systemic factors. The Anaemia Mukh Bharat initiative represents a promising step towards integrated, life-cycle-based interventions. However, to meet national and global nutrition targets, India must adopt a multi-sectoral, community-driven approach, combining nutrition, health, education, and sanitation reforms. Bridging gaps in infrastructure, awareness, and service delivery is essential to eliminate anaemia and ensure a healthier, more productive population.

WOMEN SAFETY: A CRITICAL CONCERN



WHY IN THE NEWS?

Ensuring women's safety remains a critical priority for the Indian government. The Ministry of Women and Child Development has recently reinforced its commitment to improving women's security through various initiatives. In March, the government highlighted its efforts, including legal reforms, financial initiatives such as the Nirbhaya Fund, and helpline services like Women Helpline 181. New developments such as expanded One Stop Centres (OSCs), the Emergency Response Support System (112), and trauma-informed care under Project Stree Manoraksha by NIMHANS have further strengthened women's safety mechanisms. These initiatives reflect India's multipronged approach to addressing crimes against women and ensuring their dignity, security, and empowerment.



WOMEN SAFETY IN INDIA

Women's safety remains a pressing issue in India, despite legal frameworks and policy interventions. According to the National Crime Records Bureau (NCRB) report, crimes against women have shown an increasing trend. In 2021 alone, over 4.3 lakh cases of crimes against women were reported, with rape, domestic violence, and sexual harassment being the most prevalent. Shockingly, rape cases were recorded at an alarming rate of 88 per day. Furthermore, workplace harassment, human trafficking, and dowry deaths continue to threaten women's security. As of April 2025, the most recent data on crimes against women in India is available up to the year 2022. According to the National Crime Records Bureau (NCRB), 445,256 cases of crimes against women were registered in 2022, an increase from 428,278 cases in 2021. The NCRB's annual 'Crime in India' report provides detailed statistics on various forms of crimes against women, including domestic violence, sexual harassment, and dowry deaths. However, specific data for 2023 and 2024 have not yet been published.

CONSTITUTIONAL MANDATE FOR WOMEN SAFETY

- Article 14:** Guarantees equality before the law.
- Article 15(3):** Empowers the state to make special provisions for women and children.
- Article 21:** Ensures the right to life and personal liberty, interpreted by courts to include the right to dignity and protection from violence.
- Article 39(a) & 39(d):** Mandates equal access to justice and equal pay for equal work.
- Article 51A(e):** Calls for renouncing practices derogatory to women's dignity.

Several landmark Supreme Court judgments have reinforced women's safety:

- Vishaka v. State of Rajasthan (1997):** Laid the foundation for workplace harassment laws, leading to the Sexual Harassment of Women

at Workplace (Prevention, Prohibition, and Redressal) Act, 2013.

2. **Laxmi v. Union of India (2006):** Led to stricter regulation of acid sales to curb acid attacks.
3. **Nirbhaya Case (2012):** Catalyzed amendments in criminal laws, leading to the Criminal Law (Amendment) Act, 2013, which introduced stricter punishments for sexual offenses. More recently, in *We The Women of India v. Union of India* (2023), the Supreme Court addressed the implementation of the Sexual Harassment at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act). The Court emphasized the need for effective enforcement of the Act and issued directives to ensure its proper implementation. In another significant case, *Bhawna v. Bhay Ram and Ors.* (2023), the Supreme Court reiterated that appellate courts cannot impose penalties on appellants for not proceeding with the trial, highlighting the importance of fair trial procedures. These constitutional provisions and judicial pronouncements collectively aim to create a legal framework that upholds and protects the safety and dignity of women in India.



GOVERNMENT POLICIES AND MEASURES FOR WOMEN SAFETY

LEGISLATIVE MEASURES

1. **Criminal Law (Amendment) Act, 2013:** Strengthened laws against sexual offenses by increasing punishment and fast-tracking cases.
2. **Protection of Women from Domestic Violence Act, 2005:** Provides legal recourse for domestic violence victims, ensuring protection and shelter.
3. **Sexual Harassment of Women at Workplace Act, 2013:** Ensures a safe working environment for women and mandates Internal Complaints Committees in organizations.
4. **The Juvenile Justice (Care and Protection of Children) Act, 2015:** Redefined the treatment of juvenile offenders in heinous crimes, allowing stricter penalties.
5. **The Dowry Prohibition Act, 1961:** Criminalizes the practice of dowry, with stringent penalties for violations.
6. **The Prohibition of Child Marriage Act, 2006:** Aims to prevent early and forced marriages by imposing legal consequences on offenders.

SAFETY INITIATIVES AND PROGRAMS

1. **One Stop Centre Scheme (2015):** Offers integrated support to women facing violence, providing medical, legal, and psychological assistance.
2. **Beti Bachao Beti Padhao (2015):** Aims to address gender discrimination and improve female welfare by encouraging education and awareness.
3. **Nirbhaya Fund (2013):** Allocates resources to implement safety measures such as panic buttons in transport and CCTV surveillance in public spaces.
4. **Mahila Police Volunteers (MPV) Scheme:** Engages community women to act as a bridge between police and society, enhancing safety.
5. **Safe City Projects:** Implemented in major cities to improve women's safety through technological interventions such as AI-based monitoring and smart policing.

6. **Sakhi Helpline:** A dedicated helpline for women in distress, providing immediate assistance, shelter, and counseling services.
7. **Cyber Crime Reporting Portal:** A platform for reporting online harassment, blackmail, and other cybercrimes against women, ensuring prompt action.
8. **Women's Helpline (181):** A nationwide toll-free helpline providing emergency support for women in distress, operating 24/7.
9. **She-Box Portal:** A government initiative that allows women to file workplace harassment complaints online, ensuring anonymity and faster redressal.

FINANCIAL AND ECONOMIC EMPOWERMENT

1. **Stand-Up India Scheme:** Encourages entrepreneurship among women by providing financial assistance and skill development opportunities.
2. **Mahila E-Haat:** A digital marketing platform for women entrepreneurs to showcase and sell their products, promoting economic independence.
3. **Rashtriya Mahila Kosh:** A scheme offering micro-financing options to women to enhance their financial independence and reduce vulnerability.
4. **Ujjwala Yojana:** Provides free LPG connections to empower women and improve their health and safety by reducing indoor pollution and fire hazards.

CAPACITY BUILDING AND SENSITIZATION

1. **Gender Sensitization Programs:** Conducted in schools, colleges, and workplaces to promote gender equality and eliminate biases.
2. **Self-Defense Training Programs:** Organized for women in schools and community centers to empower them against physical attacks and threats.
3. **Police Training on Gender Sensitivity:** Law enforcement officers are regularly trained to handle women's complaints with empathy and efficiency, ensuring justice. By implementing these policies and measures,

the government aims to create a safer and more inclusive environment for women in India. However, continuous monitoring, awareness campaigns, and public participation are crucial to ensuring their effective implementation.

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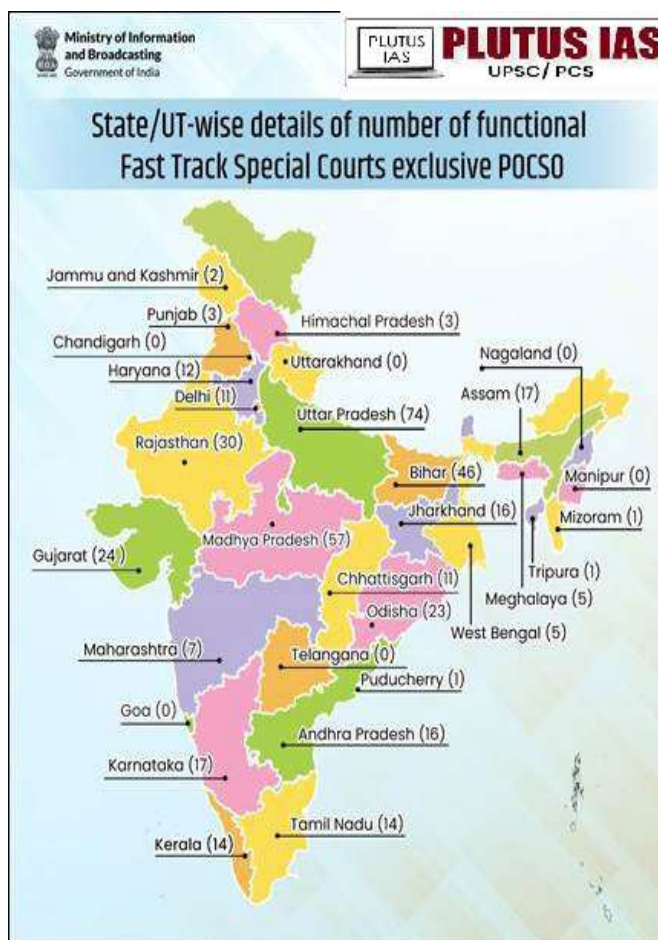
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CHALLENGES RELATED TO WOMEN SAFETY

1. **Underreporting of Crimes:** Fear of stigma and lack of trust in law enforcement prevents victims from reporting crimes, leading to a justice gap. Many cases remain unreported due to family and societal pressures.
2. **Delays in Justice Delivery:** Prolonged trials discourage victims from seeking legal recourse, reducing confidence in the legal system. Fast-track courts are often overburdened, delaying verdicts.

3. **Insufficient Policing:** Inadequate representation of women in police forces (only about 10% of total personnel) affects the sensitivity of investigations and response times. Many police stations lack dedicated women help desks or female officers.
4. **Societal Mindset and Patriarchy:** Deep-rooted gender biases hinder the effectiveness of laws and policies, perpetuating discrimination. Victim-blaming attitudes and honor-based restrictions worsen the situation.
5. **Lack of Proper Implementation:** Many government schemes fail due to poor execution and lack of awareness, reducing their impact. Corruption and bureaucratic inefficiencies further hinder the effective utilization of funds.
6. **Cyber Harassment:** Increasing cases of online stalking, revenge porn, and cyberbullying pose a new-age challenge, requiring stronger digital security measures. The anonymity of the internet emboldens perpetrators and makes enforcement difficult.
7. **Workplace Discrimination and Harassment:** Despite legal frameworks, many women still face harassment at workplaces. Fear of retaliation discourages complaints, and internal committees often fail to act promptly.
8. **Lack of Safe Public Spaces:** Poor urban planning, dimly lit streets, and insufficient public transport security make women vulnerable to street crimes. Many cities lack sufficient women-friendly infrastructure, such as well-monitored bus stops and emergency response systems.
9. **Economic Vulnerability:** Financial dependence makes women more susceptible to abuse, as they often lack the resources to leave abusive situations. Gender pay gaps and employment biases further restrict their autonomy.



RECOMMENDATIONS TO BOOST WOMEN SAFETY

1. **Strengthening Law Enforcement:** Increasing the number of women personnel in police forces. Implementing fast-track courts for speedy trials of gender-based crimes. Ensuring proper training of law enforcement personnel on gender sensitivity.
2. **Enhancing Public Infrastructure:** Installing better lighting and surveillance in public areas. Ensuring safe and reliable public transport with female security personnel. Establishing help desks in police stations dedicated to women's issues.
3. **Education and Awareness:** Conducting gender sensitization programs in schools and colleges. Encouraging bystander intervention training for the public to help prevent crimes. Running awareness campaigns on legal rights and support mechanisms.

4. **Cybersecurity and Digital Safety:** Strengthening cyber laws and enforcement against online harassment. Providing digital literacy training to women for self-protection.
5. **Community Engagement and Support Systems:** Strengthening neighborhood watch programs and self-defense training for women. Encouraging the role of NGOs and women's groups in supporting victims.

CONCLUSION

Women's safety is an issue that requires a multi-pronged approach encompassing legal, social, economic, and technological interventions. While India has made progress in enacting laws and policies, challenges in implementation and societal attitudes continue to hinder women's security. A collaborative effort involving the government, law enforcement, civil society, and individuals is essential to create a society where women feel safe, empowered, and equal. Only through continued vigilance and commitment can we ensure a future where women's safety is not just a concern but a guaranteed right.

PRELIMS QUESTIONS

1. With reference to social security schemes in India, consider the following statements:

1. Ayushman Bharat (PM-JAY) provides free health insurance coverage of up to ₹10 lakh per family.
2. EShram Portal aims to register workers from the organized sector to provide them with financial benefits.
3. Atal Pension Yojana (APY) is a pension scheme specifically designed for workers in the unorganized sector.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

2. Consider the following statements about the National Food Security & Nutrition Mission (NFSNM):

1. It is a centrally sponsored scheme focused solely on increasing food production.
2. It includes measures for soil fertility, nutritional security, and farmer support.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

3. Consider the following statements regarding Anaemia Mukt Bharat (AMB) initiative:

1. It targets six beneficiary groups with six interventions and six institutional mechanisms.
2. Weekly Iron and Folic Acid Supplementation (WIFS) under AMB covers only pregnant women.
3. Food fortification is one of the key interventions under AMB.

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

4. Which landmark Supreme Court judgment laid the foundation for workplace harassment laws in India?

- A. Laxmi v. Union of India
- B. Nirbhaya Case
- C. Vishaka v. State of Rajasthan
- D. Shah Bano Case

ANSWER

- | | | | |
|------|------|------|------|
| 1. B | 2. B | 3. B | 4. C |
|------|------|------|------|

MAINS QUESTIONS

1. Discuss the key challenges in India's social security system and suggest measures to ensure universal coverage.

(250 words, 15 marks)

2. Discuss the significance of integrating nutrition with food security policies in India. What steps can be taken to ensure both food availability and improved nutritional outcomes?

(250 words, 15 marks)

3. Anaemia continues to be a major public health challenge in India, particularly affecting women, children, and adolescents. Discuss the causes, government interventions, and key challenges in addressing anaemia in India. Also, suggest a way forward.

(250 words, 15 marks)

4. What are the major challenges hindering the implementation of women's safety laws and policies? Provide real-life examples or case studies to support your answer.

(250 words, 15 marks)

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THE REVOLUTIONARY NATIONALISM SHYAMJI KRISHNA VARMA



WHY IN THE NEWS?

Prime Minister Shri Narendra Modi paid tribute to the great freedom fighter Shyamji Krishna Varma on his death anniversary today. Shyamji Krishna Varma was a revolutionary nationalist who played a crucial role in India's freedom struggle, especially through his activities in London. PM Modi acknowledged his contributions and sacrifices in the fight against British rule.



WHO WAS SHYAMJI KRISHNA VARMA

Shyamji Krishna Varma (1857–1930) was an Indian freedom fighter, nationalist, lawyer, and journalist. He played a crucial role in India's struggle for independence by promoting revolutionary nationalism against British rule.

KEY CONTRIBUTIONS:

1. **Founder of India House (1905):** A centre in London that nurtured Indian revolutionaries, including Vinayak Damodar Savarkar.
2. **Established the Indian Home Rule Society:** Advocated for India's complete independence and self-rule.
3. **Published The Indian Sociologist:** A monthly journal that criticized British rule and inspired revolutionaries.
4. **Influence of Swami Dayanand Saraswati:** A disciple of Arya Samaj, he promoted cultural nationalism and Vedic ideals.
5. **Legal and Political Activism:** Served as Diwan (chief minister) of Ratlam and Junagadh but resigned due to British interference.
6. **Advocated Armed Resistance:** Believed that "Resistance to aggression is not simply justified, but imperative", inspired by Herbert Spencer.

CONTRIBUTIONS TO INDIAN FREEDOM STRUGGLE

1. **Founder of India House (1905):** Established India House in London as a base for Indian revolutionaries. Provided shelter, financial aid, and guidance to leaders like Savarkar, Madan Lal Dhingra, Lala Hardayal, and Virendranath Chattopadhyaya.

- 2. Formation of the Indian Home Rule Society (1905):** Founded the Indian Home Rule Society to demand complete independence (Swaraj) from British rule. Promoted revolutionary nationalism instead of peaceful protests.
 - 3. Publication of The Indian Sociologist:** Launched The Indian Sociologist, a radical monthly journal spreading anti-British ideas. Encouraged armed revolution instead of petitions and compromises.
 - 4. Support for Armed Struggle:** Rejected moderate approaches of the Indian National Congress. Supported Lokmanya Tilak during the Age of Consent Bill controversy (1890). Encouraged the Chapekar brothers and Madan Lal Dhingra's assassination of British officers.
 - 5. Financial Support for Revolutionaries:** Established Herbert Spencer Indian Fellowships to fund Indian students in Europe. Used personal wealth to finance revolutionary activities and Indian independence movements.
 - 6. Opposition to British Rule:** Exposed British oppression in India through speeches, writings, and activism. Inspired Indian students and political leaders to fight against colonial rule.
 - 7. Exile and Continued Resistance:** Forced to flee London to Paris in 1907 due to British persecution. Later moved to Geneva, Switzerland, and continued supporting Indian revolutionaries. Remained under British surveillance but never stopped his mission.
 - 8. Posthumous Recognition & Legacy:** His ashes were repatriated to India in 2003 by Narendra Modi. The Kranti Teerth Memorial in Gujarat was built in his honour. In 2015, he was posthumously reinstated to the Inner Temple, London, from where he was disbarred in 1909.
- 2. Formation of Secret Societies (1900s):** Anushilan Samiti (1902) in Bengal and Abhinav Bharat Society (1904) by Vinayak Damodar Savarkar. Promoted revolutionary ideology and military training among Indian youth.
 - 3. Role of India House & Shyamji Krishna Varma (1905-1909):** India House in London became a hub for Indian revolutionaries. Madan Lal Dhingra (1909) assassinated British official Curzon Wylie in London as an act of defiance.
 - 4. Alipore Bomb Conspiracy (1908):** Aurobindo Ghosh, Barindra Ghosh, and others planned to overthrow British rule using explosives. Khudiram Bose and Prafulla Chaki attempted to assassinate Judge Kingsford but were captured and executed.
 - 5. Ghadar Movement (1913-1917):** Lala Hardayal and Sohan Singh Bhakna founded the Ghadar Party in the USA to instigate an armed revolt in India. The Ghadar Mutiny (1915) was planned but failed due to British intelligence infiltration.
 - 6. Hindustan Republican Association (HRA) & Kakori Conspiracy (1925):** Ram Prasad Bismil, Ashfaqulla Khan, Chandrashekhar Azad led a train robbery at Kakori to fund revolutionary activities. The leaders were arrested and executed, inspiring future revolutionaries.
 - 7. HSRA & Bhagat Singh's Struggle (1928-1931):** The Hindustan Socialist Republican Association (HSRA) was formed by Bhagat Singh, Rajguru, Sukhdev, Chandrashekhar Azad. Saunders' assassination (1928) and the Central Assembly bombing (1929) were key acts of resistance.
 - 8. Azad Hind Fauj & Subhas Chandra Bose (1943-1945):** The Indian National Army (INA) was formed with Japanese support to fight the British. Bose's famous slogan: "Give me blood, and I will give you freedom!" motivated Indians to join the struggle.

REVOLUTIONARY STREAM OF INDIA'S NATIONAL MOVEMENT

- 1. Early Revolutionary Activities (1870s-1890s):** Influenced by Swami Dayanand Saraswati and Bal Gangadhar Tilak. Chapekar Brothers (1897) assassinated British officer W.C. Rand in Pune, marking early armed resistance.

CONTRIBUTIONS OF REVOLUTIONARY TO INDIA'S NATIONAL MOVEMENT

- 1. Ignited the Spirit of Resistance:** Revolutionaries like Bhagat Singh, Chandrashekhar Azad, and Subhas Chandra Bose infused fearlessness and sacrifice into the freedom struggle.

2. **Challenged British Rule:** Assassination of British officials (e.g., Curzon Wyllie by Madan Lal Dhillon, Saunders by Bhagat Singh) shook British confidence. Bomb attacks and armed resistance (e.g., Kakori Conspiracy (1925), Delhi Assembly Bombing (1929)) demonstrated defiance against colonial rule.
3. **Formed Revolutionary Organizations:** Anushilan Samiti (1902) and Jugantar (1906) in Bengal spread revolutionary ideology. Hindustan Socialist Republican Association (HSRA) (1928), led by Bhagat Singh, promoted socialism and armed struggle.
4. **Spread Nationalist Ideas:** Newspapers like Bande Mataram, Ghadar, and The Indian Sociologist fueled anti-British sentiment.
5. **Global Influence & Support:** The Ghadar Movement (USA, Canada) and Subhas Chandra Bose's INA sought international backing for independence.
6. **Forced British Repressive Measures:** Their activities led to harsh laws like the Rowlatt Act and the Defence of India Act, exposing British fear.
7. **Radicalized the Freedom Struggle:** Their demand for complete independence (Purna Swaraj) pushed Congress towards a more assertive stance.
8. **Legacy of Sacrifice & Nationalism:** Their martyrdom became a symbol of patriotism, inspiring future generations and post-independence policies.
3. **Dependence on Armed Struggle:** The focus on assassinations and bombings led to severe crackdowns, making the movement unsustainable in the long run.
4. **Harsh British Repression:** The colonial government responded with brutal measures like executions, deportations, and stricter laws (e.g., the Rowlatt Act), weakening revolutionary networks.
5. **Lack of Unity & Coordination:** Different revolutionary groups like Anushilan Samiti, HSRA, and Ghadar Party operated independently, limiting their collective impact.
6. **Failure to Gain International Support:** Unlike Gandhi's diplomacy, revolutionaries struggled to secure significant foreign backing for India's independence.
7. **Financial & Resource Constraints:** Limited funds and weapons made it difficult to sustain prolonged armed resistance against a well-equipped colonial government.
8. **Overshadowed by Mass Movements:** Non-violent mass movements led by Gandhi, Nehru, and Patel gained wider acceptance, sidelining the revolutionary approach over time.

LIMITATIONS OF REVOLUTIONARY NATIONALISM

1. **Lack of Mass Support:** Revolutionary movements were largely confined to urban youth and students, failing to mobilize the broader masses, including peasants and workers.
2. **Absence of a Clear Political Program:** Unlike Congress-led movements, revolutionaries lacked a well-defined long-term strategy for governance post-independence.

CONCLUSION

Revolutionary nationalism played a crucial role in India's freedom struggle by instilling a spirit of resistance and sacrifice. The contributions of revolutionaries like Shyamji Krishna Varma, Bhagat Singh, and Subhas Chandra Bose created an atmosphere of defiance against British rule. However, due to harsh repression, lack of mass support, and absence of a clear political strategy, it could not achieve independence on its own. Despite its limitations, the revolutionary movement laid the foundation for the demand for complete independence (Purna Swaraj) and remains a source of inspiration for generations.

MAHAVIR: THE GREAT TEACHER OF NON-VIOLENCE AND LIBERATION



WHY IN THE NEWS?

Lord Mahavir was recently in the news due to the celebration of Mahavir Jayanti, commemorating the birth of the 24th Tirthankara of Jainism. His teachings on Ahimsa, Anekantavada, and Aparigraha have gained renewed attention in the context of global discussions on non-violence, sustainability, and ethical living. Government initiatives promoting India's spiritual heritage have also highlighted Mahavir's legacy. Academic interest in Jain philosophy has grown, especially in fields like peace studies and comparative religion. Jain heritage sites associated with Mahavir are being considered for UNESCO cultural recognition. His principles are increasingly seen as relevant in addressing modern challenges like climate change, consumerism, and social intolerance.



WHO IS MAHAVIR?

Mahavir, also known as Vardhamana, was the 24th and last Tirthankara of Jainism, the spiritual victors who attained liberation and showed the path to others. He lived during the 6th century BCE, a period of great philosophical ferment, alongside Buddha and other spiritual leaders in the Gangetic plains. He is revered for attaining Keval Gyan (omniscience) after 12 years of intense penance, becoming a perfect soul free from karmic bondage. Mahavir is called a reformer who systematized ancient Jain traditions and gave them a definitive ethical framework. He emphasized personal discipline and self-effort, rejecting the role of gods or rituals

in liberation. His name "Vardhamana" signifies "one who grows" and is associated with prosperity and spiritual expansion. Jain texts describe him as an embodiment of compassion, equanimity, and renunciation, whose life is an example for all aspirants of liberation.

ABOUT MAHAVIR'S AND JAINISM

- 1. Core Principles of Jainism:** Jainism is one of the oldest Indian religions, based on principles of non-violence (Ahimsa), truth (Satya), non-possessiveness (Aparigraha), celibacy (Brahmacharya), and non-stealing (Asteya). These principles form the ethical backbone of Jain life, aiming for the purification of the soul and liberation from the cycle of rebirth. They are not merely beliefs but are rigorously practiced in daily conduct, especially by Jain monks and nuns.
- 2. Mahavir's Revival of Jainism:** Mahavir revived Jainism at a time when rituals and caste-based practices dominated spiritual life, offering a path based on ethical conduct and self-realization. He reasserted ancient Jain ideas in a rational and simplified manner, challenging the dominance of Vedic ritualism. His spiritual model was open to all, regardless of caste or social status, making Jainism more egalitarian.
- 3. Language of the People – Ardhamagadhi :** He used the common language Ardhamagadhi for preaching, making his teachings accessible to ordinary people. By moving away from Sanskrit, the elitist language of the time, Mahavir democratized spiritual knowledge. This linguistic choice helped spread Jain philosophy across regions and social classes.
- 4. Religion of Logic and Practice:** Jainism under Mahavir became a religion of logic, reason, and practice, rejecting blind faith and superstition. He encouraged questioning and understanding rather than rote rituals, aligning spiritual growth with personal experience. This rationality attracted thinkers, scholars, and commoners alike, enhancing Jainism's appeal.
- 5. The Fourfold Sangha:** He institutionalized the fourfold Sangha (monks, nuns, laymen,

laywomen), democratizing spiritual access beyond gender and social hierarchies. This inclusiveness empowered women and lay followers to engage actively in spiritual life. The Sangha structure became central to Jain community life and helped preserve and propagate Jain teachings.

- 6. Mahavir's Non-Theistic Vision:** Mahavir promoted non-theism, stating that the universe operates under natural laws and karma, not divine intervention. This philosophical stance emphasized self-responsibility over divine

dependence. By doing so, Jainism maintained a scientific worldview, explaining moral order through cause and effect rather than the will of a creator god.

- 7. Jainism's Lasting Legacy:** His teachings laid the foundation for Jainism as a highly disciplined, non-violent, and truth-seeking religion, influencing Indian spiritual and social life. Jain ethics shaped Indian culture, from vegetarianism to principles of tolerance and peace. Mahavir's legacy continues in India's philosophical traditions and in the lives of millions who practice or admire Jain values.

23 TIRTHANKARAS BEFORE MAHAVIR

S.No.	Name of Tirthankara	Symbol	Key Teachings/Attributes
1	Rishabhanatha	Bull	Initiated asceticism; first Tirthankara
2	Ajitanatha	Elephant	Promoted non-violence and truth
3	Sambhavanatha	Horse	Taught inner purity and truth
4	Abhinandananaatha	Monkey	Advocated detachment from desires
5	Sumatinatha	Heron	Symbol of wisdom and clarity
6	Padmaprabha	Red Lotus	Focused on purity and peaceful living
7	Suparshvanatha	Swastika	Emphasized righteousness
8	Chandraprabha	Moon	Enlightenment through calmness
9	Pushpadanta	Crocodile	Preached self-restraint and humility
10	Shitalanatha	Shrivatsa	Taught cool-headedness and compassion
11	Shreyansanatha	Rhinoceros	Known for intense meditation
12	Vasupujya	Buffalo	First to attain moksha in current half-cycle
13	Vimalanatha	Boar	Promoted self-purification
14	Anantanatha	Falcon	Preached boundless wisdom
15	Dharmanatha	Thunderbolt	Focused on righteous conduct
16	Shantinatha	Deer	Emblem of peace and spiritual calm
17	Kunthunatha	Goat	Emphasized control over desires
18	Aranatha	Nandavarta	Promoted moral values and devotion
19	Mallinatha	Water Pot	Symbol of female enlightenment (in Shvetambara)
20	Munisuvratanaatha	Tortoise	Preached patience and perseverance
21	Naminatha	Blue Lotus	Taught equanimity and detachment
22	Neminatha	Conch	Renounced worldly life before marriage
23	Parshvanatha	Snake	Advocated fourfold restraint (Chaturyama Dharma)

MAHAVIR – EARLY LIFE

Mahavir was born around 599 BCE in Kundagrama (now in Bihar) into the Ikshvaku dynasty, renowned for virtue and spiritual inclination. His father was King Siddhartha, and mother Trishala, who is said to have seen 14 or 16 auspicious dreams before his birth. He had a comfortable royal upbringing, trained in statecraft, philosophy, and warfare, but showed early signs of detachment. Married to Yashoda and fathered a daughter named Priyadarshana, he fulfilled household duties before choosing renunciation. At age 30, Mahavir gave up worldly life, possessions, and attachments, seeking self-realization and truth. He practiced extreme penance and meditation for 12 years, enduring heat, hunger, and insults with complete equanimity. Finally, under a Sāl tree, he attained Keval Gyan, becoming an Arihant, one who has conquered inner enemies like anger, pride, and greed.

MAHAVIR'S TEACHINGS

- 1. The Five Great Vows (Mahavratas):** Mahavir taught the Five Great Vows for ascetics: Ahimsa (non-violence), Satya (truth), Asteya (non-stealing), Brahmacharya (celibacy), and Aparigraha (non-possession). These vows form the ethical foundation of Jain monastic life and aim at complete renunciation and spiritual purification. They are considered essential for breaking the cycle of rebirth and progressing toward liberation (moksha).
- 2. Anuvratas for Householders :** For householders, he prescribed Anuvratas, which are milder forms of the same vows, showing an inclusive spiritual path. This allowed laypeople to participate in spiritual progress without renouncing worldly life. It reflected Mahavir's practical approach to spirituality, accommodating diverse lifestyles within a moral framework.
- 3. Doctrine of Anekantavada:** He emphasized Anekantavada, or the idea that reality is multi-faceted, and no single viewpoint captures complete truth. This philosophy promotes intellectual humility and respect for differing perspectives. It played a major role in shaping India's pluralistic traditions and promoting harmony among diverse belief systems.

- 4. Principle of Syadvada (Conditional Logic):** Through Syadvada, he encouraged conditional perspectives, enabling tolerance, dialogue, and humility in argument. The idea that truth can be expressed in multiple ways depending on context helped prevent dogmatism. It provided a rational and flexible approach to debate, fostering a culture of open-minded discourse.
- 5. Ethical Self-Discipline and Karma:** Mahavir stressed ethical self-discipline, mental purity, and liberation from karma through right conduct. He taught that karma is a form of subtle matter that binds the soul due to passions and attachments. Only through ethical living and inner control can one cleanse the soul and attain spiritual liberation.
- 6. Rejection of Creator God:** He opposed the idea of a creator god, instead highlighting that liberation depends on one's own karmic purification. Mahavir's view placed complete spiritual responsibility on the individual, promoting self-reliance. This rational and non-theistic worldview contributed to Jainism's identity as a scientific and introspective faith.
- 7. Self-Effort and Inner Divinity (Purushartha):** His teachings focused on self-effort (Purushartha), insisting that each soul has the potential to become divine by shedding ignorance. He emphasized that enlightenment is not granted by divine grace but earned through one's own discipline and awareness. This belief in the soul's inherent purity gave dignity and agency to every individual, regardless of birth or status.

CONTRIBUTION TO JAINISM

- 1. Codification of Jain Doctrine:** Mahavir gave final shape to Jain doctrines, codifying ethics, metaphysics, and community organization. He consolidated earlier teachings of the previous Tirthankaras into a coherent philosophical system centered on non-violence, truth, and renunciation. His structured doctrines ensured the survival and clarity of Jain principles across centuries, despite regional and linguistic diversities.
- 2. Revival of Monastic Discipline:** He re-established monastic order and asceticism, defining strict

rules for Jain monks and nuns (Shramanas). These rules included vows of celibacy, poverty, non-possession, and detachment from worldly life. The organized ascetic community created by Mahavir became a disciplined spiritual institution that ensured the propagation and preservation of Jain teachings.

3. **Promotion of Ahimsa-Based Lifestyle:** He encouraged vegetarianism, use of water filters, and walking barefoot to avoid harm to living beings. These practices were grounded in the principle of Ahimsa and extended even to microorganisms, demonstrating an extraordinary level of compassion. Such lifestyle choices laid the foundation for a deeply ethical and sustainable way of living that persists among Jains today.
4. **Preaching in the Vernacular:** He helped the spread of Jainism across India by preaching in Prakrit, the common people's language. By using Ardha-Magadhi and other regional dialects instead of Sanskrit, he made spiritual teachings accessible to the masses. This democratization of religion enabled wide acceptance among both urban traders and rural populations, making Jainism a truly pan-Indian movement.
5. **Rejection of Ritualism:** Mahavir rejected elaborate rituals and emphasized internal purity and personal morality over outer appearances. He taught that liberation (moksha) is attained through self-effort, not by rites, sacrifices, or priestly mediation. This inner-focused spirituality empowered individuals to seek truth within themselves rather than through temple-based practices.
6. **Support from Merchants and Rulers:** Under his guidance, Jainism gained patrons among merchants and rulers, helping in the construction of Jain temples and spread of Jain culture. Wealthy trading communities found Jain ethics compatible with their lifestyles, supporting the faith materially and culturally. This patronage led to the creation of architectural marvels like the Dilwara temples and the spread of Jain art, literature, and education.

7. **Compilation of Sacred Texts (Agamas):** His followers collected his teachings in the Agamas, the sacred scriptures of Jainism, forming a lasting spiritual tradition. These texts cover diverse topics, from philosophy and ethics to cosmology and conduct for ascetics and laypersons. Though some of the original texts were lost over time, their core messages continued to guide generations of Jain practitioners and scholars.

MAHAVIR'S CONTRIBUTION TO INDIAN RELIGIOUS PHILOSOPHY

1. Mahavir's concept of Ahimsa influenced not only Jainism but also Buddhism and Gandhian thought, contributing to India's spiritual heritage. His strict adherence to non-violence extended beyond physical harm to include mental and verbal actions, making it a comprehensive ethical doctrine. Mahatma Gandhi later transformed Ahimsa into a powerful tool of political resistance during India's freedom struggle, demonstrating its enduring relevance.
2. His philosophy promoted intellectual openness, encouraging respectful debate and consideration of diverse viewpoints (Anekantavada). Anekantavada, or the doctrine of manifold viewpoints, emphasized that truth is complex and cannot be grasped fully from a single perspective. This principle laid the philosophical groundwork for tolerance and pluralism in Indian thought, influencing even modern interfaith dialogues and academic discourse.
3. By rejecting ritual purity and caste privilege, he laid the foundation for a moral democracy in spiritual matters. Mahavir accepted disciples from all castes and genders, including Sudras and women, challenging the orthodox Brahmanical dominance. His egalitarian approach inspired later bhakti movements and reformers who emphasized devotion and moral conduct over birth-based hierarchy.
4. He emphasized that knowledge must be supported by practice, making Jainism a highly action-oriented religion. According to him, right knowledge (Samyak Jnana) must

be accompanied by right conduct (Samyak Charitra) and right faith (Samyak Darshan). This integrated path fostered self-discipline, leading to a highly codified ethical lifestyle among Jain followers, including strict vegetarianism and vows of truthfulness.

5. Mahavir's atheistic outlook offered a naturalistic explanation of life and karma, influencing later rationalist movements. Jain cosmology denied a creator god and instead described the universe as eternal, governed by self-operating laws of karma. This rational and self-regulating model of the cosmos appealed to thinkers who sought non-theistic explanations of existence, foreshadowing ideas in modern secular ethics.
6. His insistence on compassion for all living beings led to lasting contributions in animal rights and environmental ethics. Jain monks carry soft brooms to avoid harming even insects, reflecting an extreme sensitivity to life. Modern Jain institutions have established animal shelters (Panjarapoles) and advocate for veganism and ecological sustainability, making Mahavir a pioneer of eco-conscious spirituality.
7. Through his teachings, he contributed to India's pluralistic ethos, where dialogue, tolerance, and spiritual diversity were celebrated. Jainism coexisted peacefully with Buddhism, Hinduism, and later Islam, promoting an inclusive spiritual ecosystem in India. Mahavir's legacy nurtured a culture where diverse beliefs could thrive side by side, shaping the subcontinent's unique tradition of harmonious cohabitation.

CONCLUSION

Lord Mahavir's life and teachings continue to inspire millions across the world with his message of non-violence, truth, and spiritual liberation. His emphasis on ethical living and intellectual freedom laid the foundation for Jainism's enduring legacy. Even today, Mahavir remains a towering figure in Indian spiritual thought, with his message resonating far beyond religious boundaries, offering a timeless path of peace and self-realization.

GUPTA TEMPLE INDIA 6 PROPERTIES ADDITION TO THE TENTATIVE LIST



WHY IN THE NEWS?

India has recently added six heritage properties to the UNESCO World Heritage Centre's Tentative List on March 7, as confirmed by the Permanent Delegation of India to UNESCO. This is a crucial preliminary step toward securing a place on the World Heritage List in the future. The newly added sites include Kanger Valley National Park in Chhattisgarh, Mudumal Megalithic Menhirs in Telangana, serial nomination of Ashokan Edict Sites along the Mauryan Routes, Chausath Yogini Temples, Gupta Temples in North India, and the Palace-Fortresses of the Bundelas located in Madhya Pradesh and Uttar Pradesh. Some of these are serial nominations spread across multiple states. Inclusion in the tentative list is mandatory before a site can be formally considered for World Heritage status.



1. ROCK-CUT EDICTS

Rock-cut edicts of Emperor Ashoka are found across India, including:

1. Dhauli (Odisha)
2. Girnar (Gujarat)
3. Kalsi (Uttarakhand)
4. Mansehra (Pakistan)
5. Sopara (Maharashtra)
6. Yerragudi (Andhra Pradesh)

FEATURES

Engraved on natural rock surfaces or cave walls. Inscribed in Brahmi script, and some in Kharosthi, Greek, and Aramaic (especially in the northwest). The language used is primarily Prakrit. Themes include Dhamma (moral code), religious tolerance, animal welfare, and administrative directives. Served as a form of mass communication in the 3rd century BCE.

SIGNIFICANCE

1. These edicts are primary sources of Mauryan history and Ashokan philosophy.
2. Represent one of the earliest forms of public inscription in India.
3. They reflect political outreach, unification strategies, and Ashoka's transformation after the Kalinga war.
4. Some sites, like Girnar and Dhauili, also feature artistic carvings, including elephants and wheels.

2. Megalithic Menhirs

Prominent in Telangana, especially in Mudumal village, Narayanpet district. Also found in parts of Karnataka, Kerala, Tamil Nadu, and central India.

FEATURES

1. Tall, upright stone slabs, often planted vertically in memory of the dead.
2. Part of the Megalithic culture (1000 BCE – 300 CE).
3. Associated with burial practices, often marking dolmens or cairn circles.
4. Some menhirs are carved, while others are plain and symbolic.

SIGNIFICANCE

1. Provide evidence of prehistoric funerary practices and beliefs in life after death.
2. Indicate a complex social structure with ritualistic customs.
3. Help archaeologists trace the spread and evolution of the Megalithic culture in peninsular India.

4. Their alignment and grouping often suggest astronomical significance.

3. Chausath Yogini Temples

BACKGROUND

1. Dedicated to the worship of 64 Yoginis, mystical female deities in the Tantric tradition.
2. Originated between the 9th to 12th centuries CE.
3. Yogini temples are often found in Madhya Pradesh, Odisha, Uttar Pradesh, and other parts of central India.

CONSTRUCTION

1. Typically circular or hypaethral (open to sky).
2. Made of local stone, these temples have 64 individual niches for each Yogini statue.
3. Some also house the central deity, such as Shiva or Bhairava.
4. The circular layout may symbolize mandalas, used in tantric rituals.

PATRONAGE AND FEATURES

1. Patronized by Kalachuri, Chandela, and other regional dynasties.
2. Richly carved figures of Yoginis depict animal and human forms, often terrifying or divine.
3. The design supports ritualistic and esoteric worship associated with Tantra.

CONTRIBUTION & SIGNIFICANCE:

1. Represent a rare fusion of architecture, mysticism, and female divinity.
2. Showcase the regional Tantric traditions and diverse forms of Shaktism.
3. Important for understanding non-Vedic and folk traditions in early Indian religion.
4. Architecturally unique, influencing later temple designs, especially in Khajuraho and other sacred sites.

GUPTA TEMPLES

1. Gupta temples are spread across northern and central India, reflecting the core area of the Gupta Empire (c. 4th–6th century CE). Prominent sites include:

- Deogarh (Uttar Pradesh) – Dashavatara Temple
- Bhitargaon (Uttar Pradesh) – Brick temple
- Tigawa (Madhya Pradesh) – Vishnu temple
- Nachna (Madhya Pradesh) – Parvati temple
- Sanchi (Madhya Pradesh) – Gupta period temples
- Udayagiri (Madhya Pradesh) –

ROCK-CUT SHRINES AND SCULPTURES

Features

- Gupta temples mark the beginning of classical Hindu temple architecture.
- Use of both stone and brick construction (e.g., Bhitargaon is one of the earliest surviving brick temples).
- Introduction of shikhara (superstructure or tower above the sanctum).
- Use of garbhagriha (sanctum), mandapa (hall), and pillared porches.
- Temples are square in plan, reflecting geometrical and symbolic precision.
- Rich carvings on pillars, door lintels, and walls – showcasing stories from the Ramayana and Mahabharata.
- Sculptures are elegant, with smooth contours and idealized human forms (classical style).

CONTRIBUTION TO INDIAN ARCHITECTURE

- Gupta temples laid the foundation of the Nagara style of temple architecture in North India.
- For the first time, temples were built as permanent religious structures, moving away from earlier wooden shrines.
- Influenced later temple traditions across India, including in Khajuraho, Odisha, and South India.
- The Gupta period established the template for Hindu temple architecture, which continued to evolve for centuries.

- These temples reflect a synthesis of aesthetics, religious symbolism, and engineering—marking the Gupta period as a golden age of art and architecture.

PRELIMS QUESTIONS

- With reference to the Ghadar Movement, which of the following statements is/are correct?

- The Ghadar Party as founded in the USA in 1913 to initiate an armed revolt against British rule in India.
- Lala Lajpat Rai was one of the founding members of the Ghadar Party.

Select the correct answer using the code given below:

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

- The term Syadvada in Jainism refers to:

- The doctrine of soul's immortality
- Conditional or hypothetical standpoint
- Devotion to the Tirthankaras
- Path of devotion and surrender

- With reference to Gupta period temples, consider the following statements:

- Gupta temples were the first to introduce the concept of a garbhagriha and shikhara.
- The use of both stone and brick construction was a notable feature during this period.
- Gupta temples are primarily found in South India.

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

ANSWER

1. A	2. B	3. A
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MAINS QUESTIONS

1. Analyze the role of revolutionary nationalism in India's freedom struggle. Discuss its impact, limitations, and legacy in shaping the independence movement.
(250 words, 15marks)
2. Examine the ethical relevance of Mahavir's 'Five Great Vows' in the context of modern personal and professional life.
(250 words, 15 marks)
3. The Gupta period is often referred to as the "Golden Age" of Indian temple architecture. Examine the architectural features of Gupta temples and discuss their contribution to the development of later Hindu temple architecture in India.
(250 words, 15marks)

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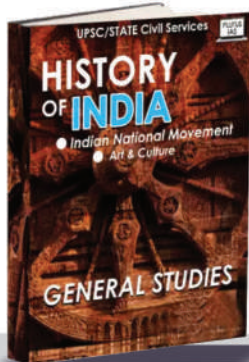
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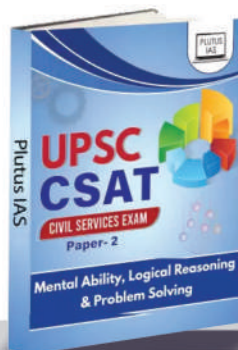
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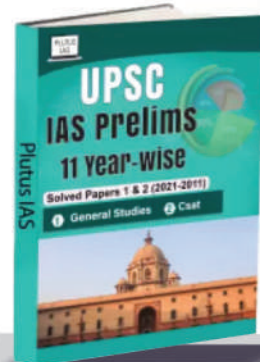
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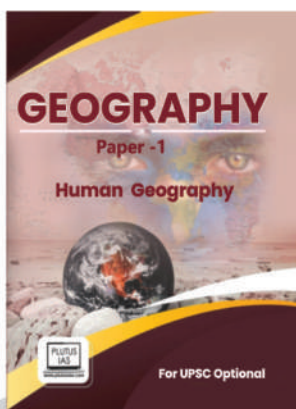


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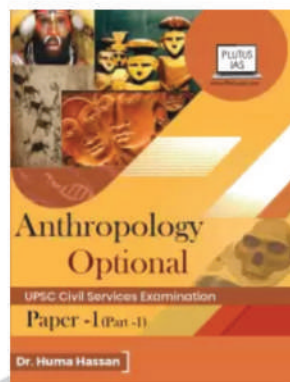


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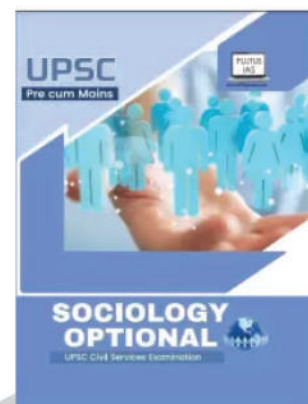
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