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Foreword

Dear Aspirants,

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

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

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

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



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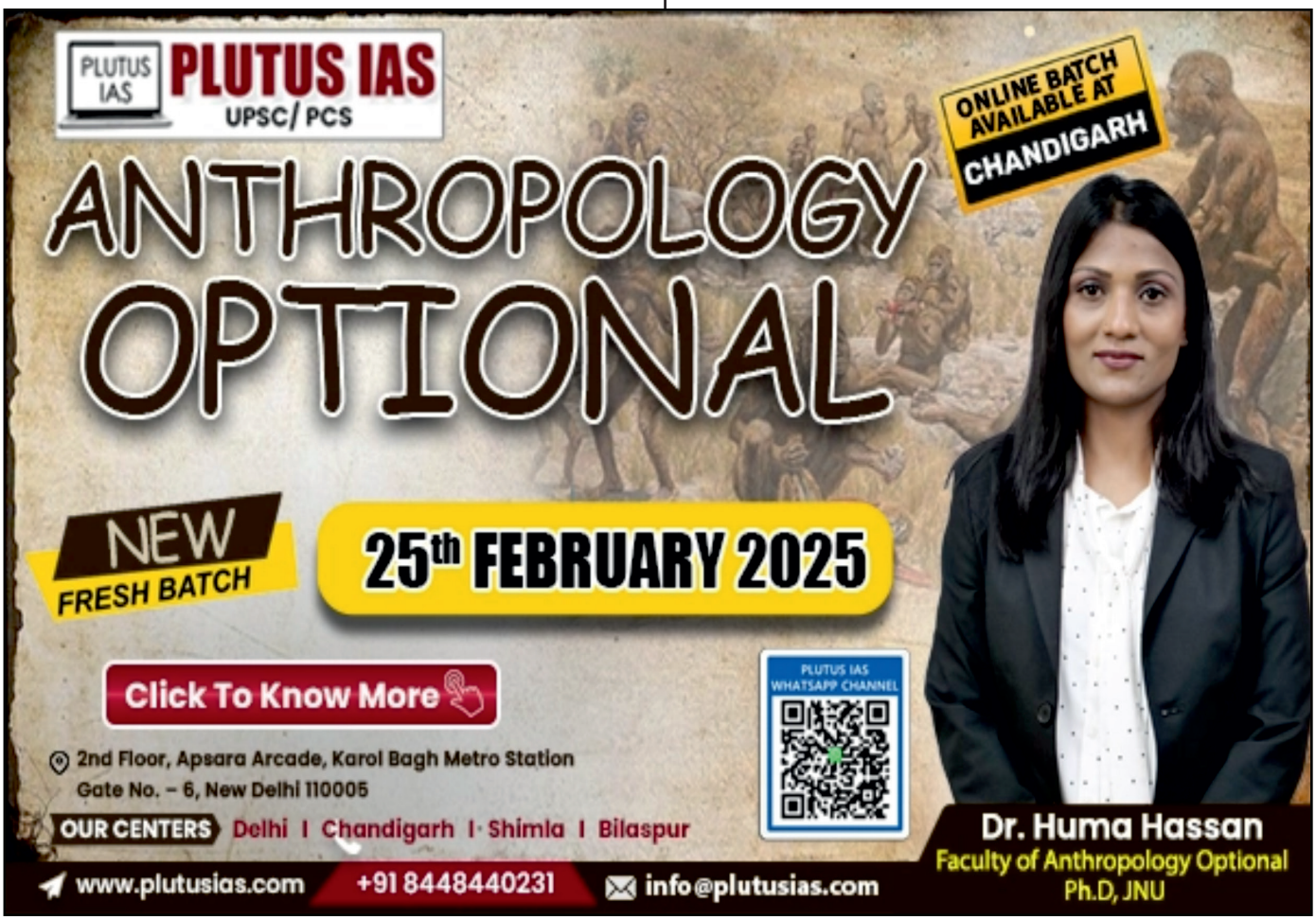
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NHRC: A PILLAR OF JUSTICE AND HUMAN RIGHTS IN INDIA

WHY IN THE NEWS?

The President of India appointed Justice V. Ramasubramanian, a retired Supreme Court judge, as the new Chairperson of the National Human Rights Commission (NHRC). This appointment comes after the post had been vacant since June 1, 2024, following the completion of the tenure of Justice (retired) Arun Kumar Mishra. Justice V. Ramasubramanian's appointment to this pivotal role is significant as the NHRC plays a crucial part in safeguarding human rights in India.

WHAT IS NHRC?

The **National Human Rights Commission (NHRC)** is an autonomous body in India that is responsible for protecting and promoting human rights in the country. Established in 1993, the NHRC works to ensure that human rights are upheld by monitoring and addressing violations, providing recommendations for their protection, and raising awareness about human rights issues. It investigates complaints of human rights violations, provides recommendations to the government, and works to improve the legal and social frameworks for protecting the rights of individuals, especially vulnerable groups.

NHRC ACT 1993: The Protection of Human Rights Act of 1993 established the National Human Rights Commission (NHRC) in India.



1. **Establishment of the NHRC:** The NHRC is headed by a Chairperson, usually a former Chief Justice of India, and includes other members with expertise in human rights.

2. **Functions and Powers:** The NHRC investigates human rights violations, makes recommendations to the government, and can intervene in legal proceedings. It also monitors laws and practices to ensure human rights standards are met.

3. **State Human Rights Commissions:** The Act allows for the creation of State Human Rights Commissions to handle regional cases.

4. **Human Rights Education:** It promotes human rights awareness and protects human rights defenders.

5. **Annual Reports:** The NHRC is required to submit an annual report to the President of

India detailing its activities and the state of human rights in the country. This helps in ensuring transparency and accountability in its functioning.

COMPOSITION OF NHRC:

1. **Chairperson:** The Chairperson is a retired Chief Justice of India or a retired Supreme Court Judge. The appointment is made by the President of India.
2. **Members:**
   One member must be a person who has been a judge of the Supreme Court of India or is a distinguished jurist. Two members must be persons who have been the Chief Justices of High Courts. One member should be a person with experience in the field of human rights, and ideally, this person should have a background in social work, law, or any related field. The President also appoints these members.
3. **Selection Committee:**
   The selection of the Chairperson and members is done by a committee comprising:

   The Prime Minister (Chairperson of the committee)

   The Home Minister

   The Leader of the Opposition in the Lok Sabha

   The Speaker of the Lok Sabha

   The Leader of the Opposition in the Rajya Sabha

NHRC achievements in the last three decades:

1. **Awareness and Advocacy:** Raised public awareness through workshops, seminars, and campaigns on human rights, reaching millions. Advocated for human rights education in schools, training 25,000 teachers and 5,000 law enforcement officials.
2. **Investigation and Redressal:** Investigated thousands of violations, including police brutality and custodial deaths. Helped secure compensation for victims of rights violations, including ₹15 lakh for custodial death cases in 2018.
3. **Strengthening Laws and Policies:** Influenced revisions to the Child Labour Act and Protection of Women from Domestic Violence Act. Advocated for legislative reforms on torture, human trafficking, and child rights.
4. **Protection of Vulnerable Groups:** Focused on women's, Dalit, tribal, and refugee rights. For example, helped 1,000+ victims of sexual harassment and trafficking. Led campaigns on gender violence and displacement issues, benefiting marginalized communities.
5. **Prison and Detention Reforms:** Inspected jails and exposed overcrowded conditions, leading to improved prison reforms. Reduced overcrowding by 20% in prisons through NHRC's intervention.

NHRC-POWERS AND FUNCTIONS:

Category	Powers	Functions
Investigative	- Can take serious action on human rights violations.	- Investigates human rights violations and seeks redress for victims.
Power to Intervene	- Can intervene in legal proceedings related to human rights in courts.	- Provides advice to the government on human rights policies and laws.
Recommendations	- Can recommend actions to the government, including reforms and compensation for victims.	- Promotes awareness of human rights through education and campaigns.

Inspection	- Can visit places of detention (jails, mental hospitals) to ensure rights protection.	-Coordinates with State Human Rights Commissions for effective protection.
Call for Records	- Can demand records from government bodies for review.	-Submits annual reports to the President on investigations and actions.
Seek Information	- Can request information from authorities for inquiries.	-Ensures follow-up on its recommendations and monitors government action.
Advisory Role	- Provides recommendations to improve human rights protections.	- Educates authorities and the public on human rights issues.

6. **Reporting and Accountability:** Submits annual reports to the President, urging quicker action on pending complaints. Ensures 70% of recommendations are implemented, promoting government accountability.
7. **Landmark Case Interventions:** Intervened in key PILs like Narmada Bachao Andolan and custodial deaths, leading to legal reforms. Filed petitions to ensure police reforms and anti-discrimination laws.
8. **International Cooperation and Recognition:** Collaborated with organizations like Amnesty International and Human Rights Watch on forced labour and human trafficking. Recognized by the UN for its proactive role in human rights advocacy and children's rights.

LIMITATIONS OF NHRC:

1. **Limited Jurisdiction:** NHRC cannot investigate events that occurred more than one year ago. Limited jurisdiction over armed forces and private parties involved in human rights violations.
2. **Non-Binding Recommendations:** NHRC's recommendations are not legally binding on the government or other bodies.
3. **Inability to Penalize:** NHRC cannot punish authorities that fail to implement its recommendations or orders.
4. **Administrative Constraints:** Faces resource shortages, including insufficient funding and staffing challenges, affecting its effectiveness.
5. **Lack of Diversity:** Criticized for the lack of diversity in its composition, as the Chairman and members are mainly from the judicial fraternity.
6. **Lack of Independence:** NHRC's composition depends on government appointments, which raises concerns about its independence.
7. **Reactive Response:** NHRC often acts reactively to complaints rather than proactively addressing systemic human rights issues.

WAY FORWARD:

1. **Expanding Jurisdiction:** Advocate for an expansion of its jurisdiction to include more cases, particularly those involving the armed forces and private parties. It should also be empowered to investigate events that happened beyond one year.
2. **Strengthening Recommendations:** The NHRC should work towards making its recommendations legally binding, ensuring greater accountability in the implementation of its suggestions.
3. **Resource Allocation:** Increase funding and staff to overcome administrative challenges and enhance its investigative capacity, making it more proactive.
4. **Promoting Diversity:** Ensure greater diversity in the commission's composition by including experts from various backgrounds like social work, law, and human rights, and not limiting the membership primarily to judicial figures.
5. **Ensuring Independence:** Strengthen the independence of the NHRC by ensuring

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its leadership and members are free from political influence, perhaps by adopting a more transparent and independent selection process.

6. **Proactive Approach:** Shift from a reactive approach to a more proactive stance by monitoring human rights conditions more closely and initiating investigations into systemic issues without waiting for complaints.

CONCLUSION

The National Human Rights Commission (NHRC) has played a critical role in promoting and protecting human rights in India over the last three decades. It has achieved significant successes in raising awareness, investigating violations, and advocating for vulnerable groups. However, the NHRC faces challenges, including limited jurisdiction, non-binding recommendations, and administrative constraints. Addressing these limitations through reforms and better resource allocation will enhance its capacity to protect human rights more effectively. By evolving into a more independent, proactive, and resourceful body, the NHRC can continue to safeguard and promote human rights in India.

CITIZEN-CENTRIC GOVERNANCE: SHAPING A BETTER FUTURE

WHY IN THE NEWS?

Recently, in his monthly radio program Mann Ki Baat, India's Prime Minister, highlighted the critical importance of citizen-centric governance. This emphasis underscores the government's commitment to placing citizens at the core of policymaking and governance processes. By advocating for more inclusive, transparent, and accountable systems, the Prime Minister aims to ensure that governance reflects the needs, aspirations, and welfare of the common people. This focus on citizen-centric governance is seen as a step toward strengthening democracy, enhancing public participation, and fostering a deeper connection between the government and its citizens.



WHAT IS CITIZEN-CENTRIC GOVERNANCE?

Citizen-centric governance refers to a governance approach that prioritizes the needs, interests, and well-being of the citizens at the heart of public administration and policy-making. It emphasizes creating systems and processes that are responsive, efficient, and transparent, ensuring that government actions align with the demands and expectations of the people it serves.

1. **Inclusion and Participation:** Actively involving citizens in decision-making processes, such as policy formulation, legislative decisions, and community development. This ensures that people have a say in matters that impact their lives.
2. **Transparency:** Ensuring that government processes, decisions, and actions are open to scrutiny, making information accessible to citizens and allowing them to hold government officials accountable.
3. **Responsiveness and Efficiency:** Delivering public services that are effective, timely, and meet the needs of the citizens. This includes reducing bureaucracy, improving service delivery, and addressing public concerns promptly.
4. **Accountability:** Citizens are empowered to hold public officials responsible for their actions, demanding action when promises are not kept and ensuring that policies are implemented as intended.

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PRINCIPLE OF CITIZEN-CENTRIC GOVERNANCE:

Citizen-centric governance prioritizes the needs, welfare, and rights of citizens in government actions.

1. **Rule of Law:** Ensures clear legal rights and swift access to justice for all citizens, protecting individual rights.
2. **Transparency:** Promotes open decision-making processes, making information about policies and governance readily available to foster trust.
3. **Accountability:** Holds government officials responsible for their actions, allowing citizens to demand explanations and report grievances.
4. **Decentralization:** Empowers local communities by delivering services and decision-making closer to citizens, enhancing responsiveness.
5. **Responsive Institutions:** Establishes agile government institutions that can quickly adapt to the needs and challenges of the population.
6. **Efficiency:** Delivers government services effectively and promptly, minimizing delays and ensuring optimal use of public resources.

RECENT INITIATIVES TO PROMOTE CITIZEN CENTRIC GOVERNANCE:

Initiative	Description	Key Achievements/Impact
Sushasan Saptah & Prashasan Gaon Ki Aur Campaign	Nationwide campaigns addressing public grievances and improving service delivery.	Over 51,000 grievance camps, 2.99 crore applications disposed, 3.4 lakh grievances redressed.
Digital India	Promoting e-governance and digital platforms for citizen services.	Increased access to online services like MyGov and Direct Benefit Transfer (DBT).
CPGRAMS	Upgraded grievance redressal system to resolve public complaints efficiently.	Over 3.4 lakh grievances were redressed during the 2024 campaign.
Abhinav Pahal	Encouraging districts to adopt successful governance models.	Districts implementing best practices from award-winning initiatives.
National Good Governance Webinars	Webinars on best governance practices, particularly in e-governance and public service delivery.	Over 1,000 field officers participated in 6 webinars in 2024.
State Collaborative Initiative Scheme (SCI)	Supporting state governments with projects to enhance governance and public service delivery.	Rs. 16.22 crore was released for 15 new projects in various states.
POSH Act Awareness	Workshops raising awareness on the Prevention of Sexual Harassment Act, ensuring safer workplaces.	Key workshops were conducted for awareness of POSH Act 2013 provisions.
Rajbhasha Kirti Award	Award for excellence in promoting Hindi in official communications.	DARPG awarded First Prize for Hindi usage in official functions (2023-24).
Women in Civil Service	Empowering women leaders and promoting gender inclusivity in governance.	Virtual roundtable with key women leaders on International Women's Day

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ISSUES STILL PERSIST:

1. **Digital Divide:** Limited internet access in rural areas excludes many from digital services like e-Governance and DBT.
2. **Bureaucratic Delays:** Slow grievance redressal and application processing hinder timely resolution.
3. **Lack of Awareness:** Many citizens remain unaware of their rights and available services, limiting engagement.
4. **Corruption & Lack of Transparency:** Despite reforms, corruption and opacity still obstruct effective service delivery.
5. **Uneven Implementation:** Disparities in the adoption of initiatives across states create inconsistent service delivery.
6. **Gender & Social Inequalities:** Gender and social biases persist, affecting access to services and representation.
7. **Rural Grievance Resolution:** Grievance systems are less accessible in rural areas, limiting timely support.
8. **Overload of Grievances:** High volumes of complaints overwhelm systems, causing delays and unresolved issues.

CONCLUSION

Citizen-centric governance in India has gained momentum through initiatives like Sushasan Saptah, Digital India, and CPGRAMS, aiming to enhance transparency, inclusivity, and efficiency. These efforts focus on improving service delivery, addressing grievances, and fostering accountability. Challenges like the digital divide, bureaucratic delays, uneven implementation, and gender/social inequalities persist, requiring further reforms. Despite these hurdles, the push for citizen engagement and responsive governance continues to strengthen democracy and better align government actions with the people's needs.

THE IMPACT OF THE PESA ACT: EMPOWERING TRIBAL COMMUNITIES

WHY IN THE NEWS?

This event is in the news because it highlights the significant role of women, particularly from Scheduled Tribes, in governance and community development through Panchayati Raj Institutions (PRIs). The meeting between the President of India, Smt. Droupadi Murmu and the women's representatives mark an important step in recognizing and empowering women in rural India. The President's address underscores the importance of PRIs in strengthening democracy at the grassroots level and their contribution to women's empowerment. Additionally, the mention of 14 lakh women serving as elected members of PRIs, constituting 46% of total elected representatives, along with states increasing reservation limits to 50%, demonstrates a commitment to ensuring greater female participation in political decision-making.



WHAT IS PESA?

The Panchayats (Extension to Scheduled Areas) Act (PESA) of 1996 extends the provisions of the 73rd Constitutional Amendment, which governs Panchayati Raj, to tribal areas under the Fifth Schedule of the Indian Constitution. These areas, called Scheduled Areas, are primarily inhabited by tribal communities and are found in ten states:

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Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana. PESA was introduced with certain exceptions to respect the distinct cultural and social characteristics of these communities.

KEY FEATURES AND GOALS OF PESA:

1. **Self-Governance for Tribal Communities:** PESA empowers Gram Sabhas (village assemblies) to govern local affairs, ensuring that tribal communities manage their resources, such as minor forest produce, minerals, and water bodies, according to their customs and traditions.
2. **Decentralized Decision-Making:** The Act gives significant decision-making powers to Gram Sabhas and Panchayats, enabling them to oversee local development, select beneficiaries for government schemes, and approve projects based on community priorities.
3. **Control Over Local Resources:** PESA guarantees that tribal communities retain control over vital resources, protecting them from exploitation and displacement caused by large-scale development projects or land acquisition.
4. **Implementation of Traditional Knowledge:** The Act acknowledges the value of traditional knowledge systems, allowing them to guide development priorities and ensuring that the approach is culturally appropriate for tribal areas.
5. **Protection of Tribal Rights:** PESA acts as a safeguard against the erosion of tribal rights and access to resources, especially in the face of external development pressures.
6. **Recognition of Local Customary Laws:** The Act respects tribal customary laws and practices, making them an integral part of governance and conflict resolution within the communities.
7. **Inclusive Development:** By placing the decision-making power in the hands of local tribal populations, PESA aims to facilitate inclusive development that is aligned with their unique needs and aspirations, promoting sustainable and equitable growth.

SIGINIFICANACE OF PESA:

1. **Local Representation**: PESA ensures Gram Sabhas (village assemblies) and Panchayats provide tribal communities with decision-making power over local resources and development.
2. **Special Provisions for Tribal Areas**: It adapts laws and policies to tribal customs, allowing local control over resources like forests, water bodies, and minor minerals.
3. **Women Empowerment**: In certain states, one-third of Panchayat seats are reserved for women, promoting gender equality in tribal governance.
4. **One-Third Representation in Panchayats**: PESA mandates one-third reservation for women in Panchayat elections, ensuring their participation in governance.
5. **PESA Outside Tribal Areas**: The principles of self-governance and resource management under PESA can be applied in non-tribal areas for broader governance reforms.
6. **Regular Elections**: PESA ensures regular elections in Panchayats, strengthening democratic governance and accountability in tribal regions.

ISSUES RELATED TO PESA:

1. **Lack of Institutional Support:** There is insufficient infrastructure and institutional backing to implement PESA effectively. Many tribal areas lack the administrative framework and resources needed to fully support the Act's provisions.
2. **Lack of Awareness:** A significant challenge is the lack of awareness among tribal communities about their rights under PESA. This limits their ability to engage with and benefit from the self-governance mechanisms the Act offers.
3. **Bureaucratic Hurdles:** Bureaucratic delays and resistance at various levels of government often slow down the implementation of PESA. Administrative red tape, insufficient coordination, and lack of political will can prevent timely and effective enforcement.

4. **Delay in Framing PESA Rules:** Many states have been slow in formulating PESA Rules, which are essential for the detailed implementation of the Act. Without these rules, local governance structures struggle to function properly.

5. **Limited Empowerment of Gram Sabhas:** While PESA empowers Gram Sabhas, in practice, local bodies often lack the authority or capacity to make impactful decisions. External influences and the persistence of traditional power structures undermine their autonomy.

6. **Inconsistent Enforcement:** Enforcement of PESA provisions is inconsistent across states, with some states failing to align their laws with the Act. This leads to mismatches in policy implementation, reducing its effectiveness.

RECOMMENDATIONS TO STRENGTHENS PESA FOR REAL PANCHAYATI RAJ INSTITUTIONS (PRIS) DEVELOPMENT:

1. **Capacity Building:** Governments should focus on training Panchayats to enhance their ability to plan and respond to citizens' needs effectively.
2. **Devolve Power:** State leaders must devolve more authority to Panchayati Raj Institutions (PRIs), as mandated by the Constitution.
3. **Build Planning and Evaluation Capacities:** PRIs should be empowered as planners and evaluators, not just implementers of projects.
4. **Elected Leaders Demand Control:** Local leaders should unite with communities to demand greater autonomy and control over local governance.
5. **Form Centres of Excellence:** The Ministry of Panchayati Raj should create Centres of Excellence in universities to support PESA's implementation with specialized training and research.
6. **Participatory Planning:** The People's Plan Campaign should focus on participatory planning, resource convergence, and using advanced technologies for rural development.
7. **Empower Women:** The 73rd Constitutional Amendment ensures one-third representation for women in Panchayats, promoting gender equality and women's involvement in decision-making.

CONCLUSION

PESA is a milestone legislation in India's legal framework aimed at empowering tribal communities and ensuring inclusive governance. The key to its success lies in protecting its sanctity by implementing its provisions in both letter and spirit. This will ensure the achievement of its goal of inclusive development and empowerment, fostering democratic participation and safeguarding tribal rights and resources in India's Scheduled Areas.

REVISED APPOINTMENT PROCESS FOR ELECTION COMMISSIONERS: A STEP TOWARDS TRANSPARENCY

WHY IN THE NEWS?

TRADITIONALLY, the successor to the Chief Election Commissioner (CEC) has been the next senior Election Commissioner. For the first time, as per the Chief Election Commissioner And Other Election Commissioners (Appointment, Conditions of Service And Term of Office) Act, 2023, the net can be cast wider. Current CEC Rajiv Kumar demits office on February 18. The Election Commission comprises the CEC and two election commissioners Gyanesh Kumar and Sukhbir Singh Sandhu at present.



ELECTIONS COMMISSION OF INDIA STRENGTHENING INDIA'S DEMOCRACY:

1. **Ensuring Free and Fair Elections:** The ECI operates as an independent body, overseeing all

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elections to ensure impartiality. It enforces the Model Code of Conduct (MCC) to maintain electoral integrity and fairness.

2. **Voter Representation:** The ECI ensures universal adult suffrage, conducts voter education campaigns, and works to prevent disenfranchisement, especially among marginalized groups and youth.
3. **Technological Innovations:** Introduced Electronic Voting Machines (EVMs) and Voter Verifiable Paper Audit Trails (VVPAT) to enhance transparency. The proposed Remote Voting Machines (RVMs) aim to address the disenfranchisement of migrant workers.
4. **Combating Criminalization:** The ECI mandates the disclosure of criminal records by candidates, helping reduce the influence of criminals in politics.
5. **Fostering Political Accountability:** The ECI monitors campaign financing and political party activities, ensuring transparency and legal compliance.
6. **Promoting Inclusivity:** The ECI ensures adequate representation for marginalized groups, including women, and works towards increasing their political participation.
7. **Ensuring Election Security:** It collaborates with security agencies to prevent violence and electoral malpractices, ensuring peaceful elections, especially in conflict-prone areas.
8. **Advocating for Electoral Reforms:** The ECI advocates for reforms such as simultaneous elections and improved voter registration processes to enhance efficiency and reduce election-related disruptions.

CONSTITUTIONAL MANDATE OF ELECTIONS COMMISSION OF INDIA:

1. **Article 324:** Grants the ECI the authority to supervise, direct, and control the entire election process in India, ensuring that elections are conducted impartially and fairly.
2. **Articles 325–329:** Establishes the framework for elections, including delimitation of constituencies and guarantees the right to vote for all eligible citizens, ensuring non-discrimination based on religion, race, caste, sex, or place of birth.
3. **Appointment and Tenure:** The President of India appoints the Chief Election Commissioner (CEC) and Election Commissioners. Their tenure is safeguarded by law, ensuring their independence and preventing political interference.
4. **Immunity from Dismissal:** The Chief Election Commissioner (CEC) cannot be dismissed except by impeachment by Parliament, which ensures the independence of the office and prevents arbitrary removal by the government.

ROLE AND POWER OF THE ELECTIONS COMMISSION OF INDIA:

1. **Supervising Elections:** ECI oversees elections to Lok Sabha, State Assemblies, and Presidency, ensuring they are conducted impartially.
2. **Delimitation of Constituencies:** It ensures fair delimitation of constituencies based on population, maintaining equitable representation.
3. **Regulating Political Parties and Candidates:** ECI registers parties, enforces campaign laws, and ensures candidate eligibility.
4. **Monitoring Campaigns:** It enforces the Model Code of Conduct (MCC), ensuring ethical campaigning and preventing malpractice.
5. **Voter Registration:** The ECI maintains electoral rolls, ensuring all eligible citizens are registered and increasing voter participation.
6. **Ensuring Election Security:** It collaborates with authorities to maintain security, prevent violence, and deploy observers.
7. **Technological Oversight:** It manages the use of EVMs and VVPATs to ensure transparent voting.
8. **Dispute Resolution:** The ECI has the authority to resolve electoral disputes and take corrective actions when needed.

INDEPENDENCE OF ELECTIONS COMMISSION OF INDIA:

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1. **Appointment Procedure:** The President of India appoints the Chief Election Commissioner (CEC) and Election Commissioners. Their tenure and independence are safeguarded by law to ensure impartial functioning.
2. **Finance:** The ECI is granted financial autonomy to prevent government interference. It is allocated its own budget by the Parliament, ensuring independence in executing its duties.
3. **Manpower:** The Election Commission has its own dedicated staff and officials to carry out election-related functions, ensuring independence from government influence in its operations.
4. **Staff:** The CEC and Election Commissioners are appointed for fixed tenures (typically six years or until they turn 65) and cannot be easily removed, protecting them from political pressures.
5. **Suspensions:** The CEC and Election Commissioners cannot be suspended or removed without due process. Only impeachment by Parliament can remove them, ensuring protection from arbitrary suspension.
6. **Re-appointment:** There is no provision for re-appointment of the CEC or Election Commissioners after their term ends, ensuring their independence by preventing potential political re-entry or influence.

ISSUES OF THE ELECTIONS COMMISSION OF INDIA:

1. **Executive Influence on Appointments**:

Appointment Process: Appointments of CEC and ECs are made by the President on government advice, risking bias.
Lack of Bipartisanship: No consultative or bipartisan process, making the EC susceptible to political pressure.

2. Limited Safeguards for Independence:

Tenure: The CEC has tenure security, but other ECs can be removed by the CEC's recommendation, lacking equal protection.
Service Conditions: CEC's service conditions are protected, but other commissioners lack similar safeguards.

3. Financial Dependence:

Government Control: The EC's budget is controlled by the government, compromising its financial autonomy.

4. Bureaucratization:

Dependence on Government Staff: The EC relies on central and state government staff, creating potential conflicts of interest.

5. Weak Enforcement of Model Code of Conduct (MCC):

No Statutory Backing: The MCC lacks legal enforceability, limiting the EC's ability to act decisively.

6. Unclear Powers:

Transfer of Officials: The EC's authority to transfer officials during elections clashes with state government control.
Administrative Interference: EC may disrupt government actions during elections, potentially affecting essential services.

7. Limited Control Over Political Parties:

Weak Party Regulation: The EC lacks the power to deregister parties or enforce internal democracy, undermining electoral integrity.

8. Executive Influence on Election Operations:

Central Armed Forces: Allegations of political influence on Central Armed Police Forces (CAPF), which could compromise election neutrality

RECOMMENDATION TO PROMOTE THE ROLE OF THE ELECTIONS COMMISSION OF INDIA:

1. **Transparent, Bipartisan Appointment:** Establish a collegium system for appointing CECs and ECs involving the PM, Leader of the Opposition, and Chief Justice of India.
2. **Equal Protections for All Commissioners:** Grant security of tenure and equal removal procedures for all ECs, similar to the CEC.
3. **Financial Independence:** Fund the EC through the Consolidated Fund of India to ensure autonomy in budget management.

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4. **Permanent Independent Secretariat:** Set up a permanent, independent secretariat to reduce reliance on government staff.
5. **Legalize the Model Code of Conduct (MCC):** Provide statutory backing to the MCC, giving the EC full enforcement power.
6. **Clarify EC's Powers:** Define EC's authority over official transfers and administrative interference during elections.
7. **Regulate Political Parties:** Empower the EC to deregister parties for violations and enforce internal party democracy.
8. **Ensure Neutrality in Election Security:** Safeguard the Central Armed Police Forces from political influence during elections.

CONCLUSION

The Election Commission of India (ECI) plays a pivotal role in strengthening India's democracy by ensuring free, fair, and transparent elections. While it has made significant strides in promoting electoral integrity, the ECI faces challenges such as executive influence, limited safeguards for independence, financial dependence, and bureaucratization. To address these challenges and further enhance its role, it is essential to implement reforms that focus on transparent and bipartisan appointments, equal protections for all Election Commissioners, financial autonomy, and a permanent independent secretariat. Additionally, legalizing the Model Code of Conduct (MCC), empowering the EC to regulate political parties, and ensuring neutrality in election security will contribute to a more robust and impartial election process.

Prelims Question:

1. Which of the following statements regarding the National Human Rights Commission (NHRC) of India are correct?

2. The NHRC is empowered to take binding legal actions against the government.
3. The NHRC's recommendations are legally binding on the government and other authorities.
4. NHRC investigates complaints of human rights violations and can intervene in legal proceedings.
5. The NHRC is mandated to submit annual reports to the President of India.

Choose the correct answer using the code below:

A. 1, 2, and 3

B. 3 and 4

C. 1, 3, and 4

D. 2 and 4

2. Consider the following statements:

1. Citizen-centric governance aims to prioritize the needs, interests, and welfare of citizens in government actions.
2. The Sushasan Saptah & Prashasan Gaon Ki Aur Campaign primarily focuses on promoting digital literacy in urban areas.
3. CPGRAMS (Centralized Public Grievance Redress and Monitoring System) is an initiative to resolve public complaints efficiently.

How many of the statements given above are correct?

A. Only one

B. Only two

C. All three

D. None

3. Consider the following statements

1. The Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, extends the provisions of the 73rd Constitutional Amendment to tribal areas in India.
2. The Act empowers Gram Sabhas to govern local affairs and manage resources such as forests, water bodies, and minerals.
3. PESA mandates a one-third reservation for women in Panchayat elections in tribal areas.

How many of the statements given above are correct?

A. Only one

B. Only two

C. All three

D. None

4. With reference to the Election Commission of India (ECI), consider the following statements:

1. The Chief Election Commissioner (CEC) can be removed by a majority vote in the Parliament.
2. The Election Commission is responsible for conducting elections to the Rajya Sabha, Lok Sabha, and State Legislative Assemblies.
3. The Model Code of Conduct (MCC) is legally enforceable in Indian elections.

How many of the above-given statements are correct?

A. Only one

B. Only two

C. All three

D. None

Answers

1. B	2. A	3. B	4. B

Mains Question:

1. The National Human Rights Commission (NHRC) has played an instrumental role in safeguarding human rights in India over the past three decades. Discuss these limitations and suggest measures to enhance the NHRC's capacity to protect human rights more effectively.

(250 words, 15 marks)

2. Discuss the concept of citizen-centric governance and examine the recent initiatives taken by the Indian government to promote it. What challenges persist in its implementation, and how can these be addressed to ensure more inclusive and efficient governance?

(250 words, 15 marks)

3. Discuss the significance of the Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, in empowering tribal communities in India. What challenges does the implementation of PESA face, and what measures can be taken to ensure its effective implementation?

(250 words, 15 marks)

4. The Election Commission of India (ECI) plays a crucial role in safeguarding the democratic framework of the country. Discuss the challenges faced by the ECI in ensuring electoral integrity and suggest reforms to enhance its independence and efficiency.

(250 words, 15 marks)



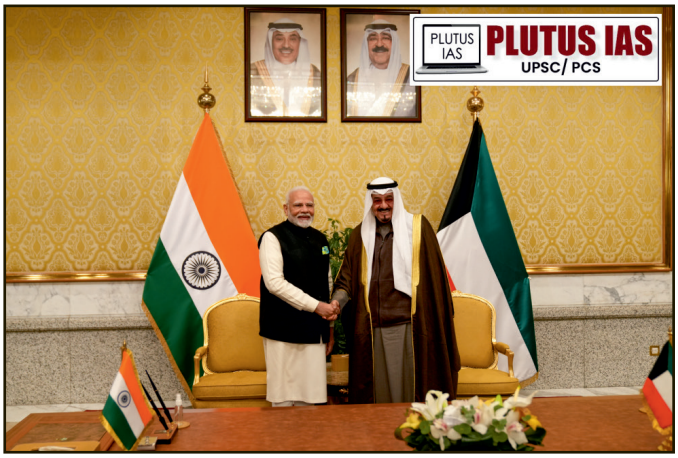




HISTORIC DIPLOMATIC OUTREACH: PM MODI'S LANDMARK VISIT TO KUWAIT AFTER 43 YEARS"

WHY IN THE NEWS?

Prime Minister Narendra Modi has embarked on a two-day visit to Kuwait, marking the first visit by an Indian Prime Minister to Kuwait in 43 years. The visit comes at the invitation of Sheikh Meshal Al-Ahmad Al-Jaber Al-Sabah, the Amir of the State of Kuwait. This visit is significant for strengthening bilateral ties in energy, trade, investment, and cultural exchange.



INDIA-KUWAIT BILATERAL RELATIONS

India and Kuwait share traditionally friendly relations, which are rooted in history and have been strengthened over time. India has long been a natural trading partner for Kuwait, with the Indian Rupee even serving as legal tender in Kuwait until 1961. Before the discovery of oil, Kuwait's economy was centered around maritime activities such as shipbuilding, pearl diving, and fishing. Indian traders, traveling on wooden dhows, exchanged dates, Arabian horses, and pearls for goods like wood, cereals, clothes, and spices.

INDIA-KUWAIT AREAS OF COOPERATION

1. **Bilateral Agreements and MoUs:** India and Kuwait have signed 26 bilateral agreements/ MoUs across various sectors, with 14 more in different stages of finalization.
2. **Hydrocarbon Sector:** Kuwait plays a vital role in India's energy security, being a reliable supplier of crude oil and LPG.
3. **Medical Cooperation**: An MoU on Medical Cooperation was signed in 2012, leading to the establishment of a Joint Working Group (JWG) on Medical Cooperation. The third meeting is planned for 2024 in New Delhi to enhance collaboration in the healthcare sector further.
4. **COVID-19 Cooperation:** An Indian medical team was deployed to Kuwait in April 2020, and 200,000 doses of Covishield vaccines were supplied in 2021. During India's second wave, Kuwait established an air/sea bridge to send over 425 metric tons of liquid oxygen.
5. **Manpower Cooperation:** Indians form the largest expatriate community in Kuwait, with approximately 1 million citizens residing there. Labor and manpower issues are addressed through a Joint Working Group (JWG), which meets regularly.
6. **Science and Technology:** India and Kuwait have established strong ties in science and technology through various agreements. The S&T Agreement was signed in 2009.
7. **Economic Relations**

   Bilateral Trade: Trade relations are robust, with bilateral trade reaching $10.47 billion in FY

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2023-24. Indian exports grew by 34.7% YoY, with Kuwait being the 6th largest supplier of crude oil to India, meeting 3% of India's energy needs

Investments: Kuwait Investment Authority (KIA) has invested over $10 billion in India, primarily in liquid assets.

Indian Businesses: Numerous Indian public and private sector companies, such as L&T, Tata, and Wipro, operate in Kuwait.

BIPPA: A new Bilateral Investment Treaty is under negotiation, with discussions ongoing since 2018.

7. **Civil Aviation:** The two countries have a seat-sharing arrangement of 12,000 seats per week.
8. **Cultural Relations:** Over 200 cultural programs were organized in 2021-22 to mark the 60th anniversary of diplomatic ties. The Festival of India held in Kuwait in March 2023.
9. **Education:** There are 26 CBSE schools in Kuwait with over 60,000 students, primarily Indian. Efforts are underway to include Indian universities in Kuwait's accreditation system to encourage higher education exchanges.

SIGNIFICANCE OF KUWAIT FOR INDIA

1. **Source of Remittances:** With approximately 1 million Indians residing in Kuwait, the country is a significant source of remittances for India.
2. **Energy Security:** Kuwait is a key supplier of crude oil and LPG, fulfilling about 3% of India's energy needs.
3. **Regional Cooperation:** Kuwait plays a crucial role in fostering regional stability in the Gulf Cooperation Council (GCC) and the broader Middle East region. It provides a platform for dialogue and cooperation in addressing common challenges, such as energy security, trade, and counter-terrorism.
4. **Strategic Location:** Kuwait's geographical position at the head of the Arabian Peninsula offers India strategic advantages for trade, security, and connectivity. Its proximity to key shipping lanes enhances India's access to the Arabian Gulf and Middle Eastern markets.
5. **Support for India at UN Forums:** Kuwait has often extended its diplomatic support to India in multilateral forums, including the United Nations.
6. **Balancing Ties with the Arab World:** Kuwait's potential membership in initiatives like the International Solar Alliance (ISA) highlights its alignment with India's global initiatives.
7. **Trade and Investment:** Kuwait is one of India's key trading partners, with bilateral trade reaching $10.47 billion in FY 2023-24.
8. **Cultural and Educational Ties:** The presence of 26 Indian schools in Kuwait with over 60,000 students strengthens people-to-people ties. Collaborative cultural initiatives, such as the Festival of India and the establishment of India Study Centres, enhance bilateral goodwill.

CHALLENGES TO INDIA-KUWAIT COOPERATION

1. **Migration and Labour Rights:** Issues related to the protection of migrant workers' rights, especially blue-collar workers, are strained bilateral ties. Disputes over wages, working conditions, and contractual violations occasionally arise, impacting the welfare of Indian expatriates.
2. **Land Acquisition:** Prolonged delays in the allocation of land for the construction of Indian diplomatic residences in Kuwait and reciprocal arrangements for Kuwait's consulate in Mumbai remain unresolved.
3. **Protection of Indian Diaspora:** Despite forming the largest expatriate group in Kuwait, Indians often face challenges in legal protection and emergencies.
4. **Domestic Political Dynamics in India:** Domestic policies and narratives within India, including laws affecting minorities, could potentially influence Kuwait's perception of India's inclusivity.
5. **Kuwait's Relations with Pakistan:** Kuwait's growing economic and political engagement with Pakistan can occasionally create conflicting priorities for India.

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6. **Divergent Strategic Priorities:** While India seeks closer ties with Kuwait for energy security and trade, Kuwait's alignment with GCC policies could sometimes diverge from Indian interests.

7. **Regional and Geopolitical Instabilities:** Instabilities in the Gulf region, including tensions between Iran and GCC countries, can disrupt India-Kuwait relations.

WAY FORWARD FOR STRENGTHENING INDIA-KUWAIT COOPERATION

1. **Continuous Bilateral Engagement:** Foster regular communication and collaboration through mechanisms like Joint Working Groups (JWGs) in key areas such as hydrocarbons, labour, medical cooperation, and culture.

2. **High-Level Meetings and Leadership Engagement:** Organize frequent high-level visits and meetings between the leadership of both countries to strengthen trust and strategic alignment. Build on the momentum created by events like the 60th anniversary of diplomatic ties to deepen bilateral relations.

3. **Resolving Land Acquisition Issues:** Expedite the allocation of land for Indian diplomatic residences in Kuwait and reciprocal arrangements for Kuwait's consulate in Mumbai.

4. **Managing Migrant and Diaspora Issues**: Address the challenges faced by Indian expatriates through enhanced dialogue and diplomacy with Kuwait's authorities.

5. **Consistent Support for Kuwait's Sovereignty:** Reiterate India's historical support for Kuwait's sovereignty and independence, as demonstrated during the Gulf War.

6. **Collaboration on Mutual Priorities**: Work together on critical global and regional issues such as climate change, energy security, urban development, and water conservation practices.

7. **Expanding Economic and Technological Ties:** Promote investment opportunities for Kuwait in India's infrastructure and technology sectors. Enhance collaboration in science and technology, building on partnerships between institutions like CSIR and KISR, while exploring innovative solutions for shared challenges.

8. **Counter-Terrorism, Cybersecurity, and Prevention of Radicalization**

1. **Strengthen cooperation** in counter-terrorism operations by sharing intelligence, conducting joint training, and enhancing security frameworks.

2. **Develop partnerships** in cybersecurity to combat emerging threats and ensure the safety of digital infrastructure.

3. **Work on de-radicalization strategies** to prevent the spread of extremist ideologies and ensure regional peace and stability.

CONCLUSION

A holistic approach that integrates security cooperation with economic, cultural, and diplomatic efforts will ensure that India-Kuwait relations remain strong and resilient in addressing both opportunities and challenges.

ROLE OF PMO IN SHAPING FOREIGN POLICY

WHY IN THE NEWS?

The tribute by India's External Affairs Minister, Dr S. Jaishankar, to the late former Prime Minister, in which he expressed sorrow over his passing, has made headlines because of its profound acknowledgement of the late leader's dual legacy both in economic reforms and foreign policy. Dr Jaishankar's statement highlights the former Prime Minister's key role in shaping India's economic transformation and strategic foreign policy shifts, marking him as a pivotal figure in India's modern history. In particular, the tribute underlined that the late Prime Minister was not only recognized for his economic reforms but was also instrumental in strategic corrections that influenced India's global positioning. Dr Jaishankar, who had the privilege of working closely with him, emphasized the former leader's kindness and courtesy, which added a personal touch to his public reflection.

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LEGACY OF ATAL BIHARI VAJPAYEE:

1. **1998 Nuclear Tests:** Vajpayee's government conducted nuclear tests in May 1998, asserting India's position as a nuclear power. The tests were driven by security concerns, particularly from Pakistan and China. While initially met with international condemnation, the decision helped eliminate India's nuclear ambiguity, leading to global recognition of India's nuclear status. Vajpayee's stance on nuclear deterrence was pivotal in shaping India's future security policy.

2. **Diplomatic Engagement:**

United States: Despite sanctions after the tests, Vajpayee's diplomacy with the U.S., led by Foreign Minister Jaswant Singh, paved the way for improved relations and the eventual Indo-U.S. nuclear deal in 2005.

China: Vajpayee worked to stabilize relations with China, marking a historic visit to Beijing in 2003. He initiated confidence-building measures and secured China's recognition of Sikkim as part of India.

Pakistan: Vajpayee sought peace with Pakistan, exemplified by the Lahore Declaration in 1999. However, the Kargil War later tested his resolve. Despite the conflict, he maintained a peace dialogue with Pakistan, underscoring his commitment to diplomacy.

Israel and West Asia: He also strengthened ties with Israel and engaged strategically with Iran, enhancing India's influence in West Asia.

3. Global Vision: Vajpayee's foreign policy was marked by a balance of security and diplomacy. His leadership solidified India's nuclear deterrence, expanded strategic partnerships, and elevated India's role on the global stage, laying the foundation for its rise as a major power.

MANMOHAN SINGH NUCLEAR TEST AND PAKISTAN ENGAGEMENT:

1. **India-US Nuclear Deal (2005-2008):** Manmohan Singh's push for the India-US nuclear deal was hailed as a diplomatic breakthrough but also faced considerable opposition.

2. **Overdependence on the U.S.:** While the deal opened up access to nuclear technology and fuel, critics argued that it made India overly dependent on the U.S. for its nuclear energy needs. The agreement required India to place its civilian nuclear facilities under IAEA safeguards, but this was seen as compromising India's strategic autonomy. The deal was viewed by some as a concession to U.S. power, potentially limiting India's freedom in future nuclear policy decisions.

3. **Strategic Concerns:** The deal was also criticized for essentially legitimizing India's nuclear status without the obligations of the Nuclear Non-Proliferation Treaty (NPT). Many analysts believed this set a dangerous precedent, undermining global non-proliferation efforts. Moreover, Pakistan viewed the agreement as a destabilizing factor in South Asia, as it strengthened India's nuclear capabilities without similar concessions to Pakistan. Critics argued that the deal could fuel an arms race in the region.

4. **Domestic Fallout:** The deal was highly controversial domestically. Opponents within India, including several political parties, feared it would constrain India's strategic autonomy, tying the country closer to U.S. interests. Despite the approval of the deal by Parliament, many felt Singh had compromised too much for the sake of international recognition.

ENGAGEMENT WITH PAKISTAN: MANMOHAN SINGH'S DIPLOMATIC JOURNEY:

1. **Early Optimism and Fragile Progress:** Singh's administration aimed to improve ties with Pakistan, restarting peace talks in 2004 and enhancing confidence-building measures,

such as resuming transportation links between Kashmir regions. However, these efforts were undermined by unresolved issues like Kashmir, cross-border terrorism, and military tensions.

2. **Mumbai Attacks:** A Turning Point: The 2008 Mumbai attacks, carried out by Pakistan-based terrorists, marked a significant setback. India's demand for action against the attackers was met with Pakistan's inaction and denial, leading to a sharp decline in bilateral relations. Critics argued that Singh's dialogue-focused approach failed to address Pakistan's reluctance to combat terrorism.

3. **Stalled Dialogue and Criticism:** Following the Mumbai attacks, the peace process effectively stalled. While Singh's restraint in avoiding military escalation was noted, critics claimed his diplomacy lacked the leverage and strategy needed to compel Pakistan to act against cross-border terrorism, ultimately emboldening Islamabad.

PM MODI'S GREATER ENGAGEMENT AND MULTI-ALIGNMENT:

Prime Minister Narendra Modi's foreign policy is defined by greater engagement with global powers and a multi-alignment strategy aimed at strengthening India's global influence while balancing diverse relationships.

1. Greater Engagement with Global Powers

United States: Strengthened defence ties, trade partnerships, and strategic cooperation, especially to counter China's rise.

Russia: Maintained strong defence and energy ties, ensuring a balanced approach despite closer U.S. ties.

China: Economic engagement tempered by border tensions (e.g., Galwan). India counterbalances China's influence via the Quad.

Japan: Enhanced cooperation on infrastructure and defence, reinforcing India's strategic position in Asia.

2. Multi-Alignment Strategy

South Asia: Focus on regional ties, with strained relations with Pakistan over Kashmir and terrorism. Strengthened ties with Bangladesh and Sri Lanka.

Middle East & Africa: Expanded ties with Gulf countries for energy and security. Deepened relations with Israel.

Indo-Pacific: Active in the Quad, positioning India as a counterbalance to China.

3. Economic Diplomacy: Modi's push for trade deals and foreign investment aims to boost India's global economic standing. Initiatives like Make in India seek self-reliance and economic growth, despite challenges like trade imbalances.

CHALLENGES TO MANOEUVRING INDIA'S FOREIGN POLICY:

1. **Russia-Ukraine Tensions:** India faces a dilemma balancing its long-standing defence ties with Russia while aligning with global pressures, especially on energy sanctions and broader geopolitical issues, given its growing ties with the U.S.
2. **Energy Insecurity Due to Middle East Instability:** India's reliance on Middle East oil makes it vulnerable to disruptions from regional conflicts (e.g., Iran, Saudi Arabia, Iraq) and instability in the Persian Gulf, threatening energy security.
3. **Tightrope Walking Between Major Powers:** India must balance its multi-alignment strategy—maintaining strong ties with the U.S., Russia, and China, while managing tensions, especially in the Indo-Pacific.
4. **Upcoming U.S. Administration:** The uncertainty of a new U.S. administration could alter U.S.-India relations, impacting defence cooperation, trade, and regional security, requiring India to adapt diplomatically.
5. **Tensions in India's Backyard (e.g., Bangladesh):** Regional instability—including issues with Bangladesh, Sri Lanka, and Nepal—poses risks to India's security and economic interests in its neighbourhood.
6. **Curse of Geography:** China and Pakistan: India's proximity to China (with border disputes) and Pakistan (over Kashmir and cross-border

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terrorism) forces India to adopt a cautious, defensive foreign policy.

7. **Voice in Regional Forums:** India's influence in regional organizations like SAARC, BRICS, and SCO is limited by India-Pakistan tensions and strained relations with China, making it challenging to assert its leadership.

FUTURE COURSE OF ACTION:

1. **Balancing Relations with Russia and the U.S.:** India must strengthen ties with both Russia and the U.S., expanding defence cooperation with the U.S. while maintaining strategic autonomy with Russia. It should also diversify its energy sources to avoid over-dependence on any single region.

2. **Strengthening Regional Security and Diplomacy:** India should foster peaceful ties in South Asia, particularly with Bangladesh, Sri Lanka, and Nepal, while addressing security concerns. Engagement with Pakistan must be conditioned on countering terrorism and resolving disputes through dialogue.

3. **Energy Security Strategy:** Diversifying energy sources, including renewables and partnerships with Australia, Africa, and other suppliers, is crucial to safeguard against Middle East instability.

4. **China Engagement:** India should compartmentalize economic cooperation with China from security issues, strengthen its role in the Indo-Pacific through the Quad, and maintain a strong defence posture against Chinese aggression.

5. **Global Influence and Multilateral Engagement:** India must assert its global role by engaging in platforms like the UN, BRICS, SCO, and G20, emphasizing leadership in climate change, digital governance, and peacekeeping.

6. **Economic Diplomacy and Trade Deals:** India should pursue trade agreements focusing on manufacturing, technology, and green energy, leveraging Make in India and Atmanirbhar Bharat to attract foreign investment and boost economic growth.

7. **Internal Cohesion for External Influence:** Strengthening domestic stability on issues like Kashmir, economic reform, and security will enhance India's global influence, presenting a strong democratic model on the world stage.

CONCLUSION

India's future foreign policy will need to strike a balance between engagement with global powers, regional security concerns, and internal growth. As a rising global power, India's strategic autonomy, economic dynamism, and diplomatic initiatives must align with its national interests. A careful mix of traditional alliances, multilateral engagement, and forward-thinking policies will help India overcome the challenges it faces, ensuring that it remains a prominent player in shaping global affairs in the years to come.

INDIAN DIASPORA IS INTEGRAL TO THE VISION OF DEVELOPED INDIA: PRESIDENT DROUPADI MURMU

WHY IN THE NEWS?

President Droupadi Murmu addressed the valedictory session of the 18th Pravasi Bharatiya Divas in Bhubaneswar, Odisha, celebrating the significant contributions of the Indian Diaspora across various fields. She praised their global impact, noting their achievements in technology, medicine, arts, and entrepreneurship. The President also congratulated the Pravasi Bharatiya Samman awardees and recognized Her Excellency Christine Kangaloo, President of Trinidad and Tobago, for her leadership and support for the Indian Diaspora. President Murmu emphasized that the Pravasi Bharatiya Divas has become a key platform for strengthening ties between India and its global community, fostering collaboration and idea exchange.



INDIAN DIASPORA:

The Indian diaspora is one of the largest and most widespread communities in the world, with an estimated 21 million people of Indian origin residing in over 200 countries.

1. **United States:** One of the largest Indian communities, with over 4 million people.
2. **Saudi Arabia:** Home to approximately 2.5 million people of Indian origin.
3. **United Arab Emirates (UAE):** The Indian population here is also around 3 million.
4. **Malaysia:** Around 2 million people of Indian origin.
5. **Myanmar:** Around 1.5 million people.
6. **United Kingdom:** Around 1.5 million people.
7. **Sri Lanka:** Approximately 1 million people of Indian descent.
8. **South Africa:** Nearly 1.5 million people.

ECONOMIC IMPACT: REMITTANCES

The Indian diaspora is a major contributor to India's economy, particularly through remittances. In 2021, India received approximately $87 billion in remittances, making it the largest recipient globally. The United States is the largest source of these remittances, followed by countries in the Middle East and other regions.

GOVERNMENT SCHEMES AND PROGRAMS

1. **Overseas Citizenship of India (OCI)**: Offers registration, rights, and procedures for individuals of Indian origin.
2. **Scholarship Programme for Diaspora Children (SPDC)**: Provides scholarships for students in fields like engineering, technology, and humanities.
3. **Direct Admission of Students Abroad (DASA)**: Facilitates admissions to top Central Engineering institutions for Foreign Nationals, PIOs, and NRIs.
4. **Diaspora Services Division**: Offers comprehensive information on programs and schemes for overseas Indians.

ROLE OF INDIANA DIASPORA TO PROMOTE INDIAN NATIONAL INTEREST:

1. **Economic Contributions**: The diaspora contributes significantly through remittances, business investments, and job creation, supporting India's economic growth.
2. **Cultural Influence**: By promoting Indian culture globally, including yoga, Ayurveda, and traditional arts, the diaspora enhances India's soft power and fosters global appreciation for its heritage.
3. **Political Advocacy**: Many diaspora members hold influential positions abroad, advocating for India's interests and shaping favourable policies.
4. **Diplomatic Relations**: The diaspora strengthens India's ties with host countries, fostering cooperation in trade, education, and technology.
5. **Soft Power Diplomacy**: The diaspora promotes India's values and interests internationally, bolstering its global influence.
6. **Philanthropy**: They contribute to India's development in areas like education, healthcare, and rural welfare through charitable efforts.
7. **Security and Strategy**: The diaspora can influence security matters and support India's strategic interests on the global stage.

CHALLENGES AND ISSUES FACED BY THE INDIAN DIASPORA:

1. **Discrimination:** The Indian diaspora can face prejudice and racism based on their ethnicity and skin colour. Discrimination can limit social mobility and make it difficult to integrate into mainstream society.
2. **Identity crisis:** The pressure to assimilate into the host culture while also maintaining ties to Indian heritage can create an identity crisis.
3. **Non-acceptance of qualifications:** Indian immigrants may face challenges in getting their qualifications and work experience accepted. For example, they may need to get additional certifications or licenses to work in certain countries.
4. **Consular issues:** The Indian diaspora may complain about mistreatment, intimidation, and demands for illegal gratification from immigration officials.
5. **West Asian crisis:** The volatility in West Asia and the fall in oil prices have caused fears of a large return of Indian nationals. This could curtail remittances and create demands on the job market.

WAY TO MAKE INDIAN DIASPORA AS TORCH-BEARERS OF INDIAN DIPLOMACY:

1. **Strengthen Diplomatic Engagement:** Organize regular interactions through events like Pravasi Bharatiya Divas. Appoint diaspora figures as cultural and business ambassadors to bridge India's foreign policy with host countries.
2. **Empower Policy Advocacy:** Establish advocacy channels for diaspora groups to lobby for India's interests. Encourage diaspora members to engage in local politics to influence decisions beneficial to India.
3. **Leverage Economic Power:** Facilitate diaspora investments in key Indian sectors like technology and infrastructure. Use diaspora networks to promote trade and business collaborations between India and host countries.
4. **Enhance Cultural Diplomacy:** Promote Indian culture through festivals, exhibitions, and media engagements abroad. Encourage diaspora participation in celebrating Indian heritage and traditions globally.
5. **Harness Technological Expertise**: Collaborate with diaspora professionals to promote digital growth and technological innovation in India. Increase India's digital footprint by leveraging the diaspora's tech skills.
6. **Promote Educational Partnerships:** Establish academic exchanges and collaborations between Indian and diaspora-led institutions. Foster global hubs for research and education, linking India with the world

CONCLUSION

The Indian diaspora is a powerful force driving India's global influence across economics, culture, and diplomacy. By leveraging their contributions and overcoming challenges, India can enhance its position on the world stage. Empowering the diaspora ensures India's continued growth and strategic importance internationally.

INDIA AND FRANCE: STRENGTHENING TIES FOR A SHARED FUTURE

WHY IN THE NEWS?

The French Carrier Strike Group's visit to India is making headlines due to its strategic significance in strengthening defence ties between India and France. This visit highlights key aspects like the Passage Exercise (PASSEX) at sea, which demonstrates enhanced interoperability between the Indian and French navies. The harbour engagements in Goa and Kochi, including professional exchanges and cross-deck visits, emphasize cooperation in maritime security and defence collaboration in the Indo-Pacific. With both nations prioritizing stability and security in the region, the visit underscores growing international defence partnerships in response to emerging global challenges.



FLOURISHING INDIA AND FRANCE RELATIONS:

1. **Trade**: Bilateral trade reached $13.81 billion in 2022-23, with India's exports to France at $7.7 billion and French exports to India at $5.5 billion. France is India's 11th largest foreign investor, particularly in aerospace, defence, and renewable energy.
2. **Defense:** Rafale deal France's €7.8 billion deal for 36 Rafale fighter jets and joint projects like Scorpène-class submarines are key to India's defence modernization. Technology transfers and defence collaborations continue to strengthen their strategic ties.
3. **Space:** The Strategic Space Dialogue (June 2023) and the Horizon 2047 roadmap (July 2023) deepen India-France collaboration in satellite technologies and space exploration.
4. **Climate Change:** The International Solar Alliance (ISA), co-founded by India and France, now includes 120+ countries, aiming to promote solar energy worldwide. Their Partnership for the Planet focuses on climate change, biodiversity, and public health under the Paris Agreement.
5. **Smart Cities:** Joint projects like the Chandigarh Smart City and initiatives in Puducherry, Nagpur, and Meerut highlight their focus on sustainable urban development.
6. **Global Governance:** France supports India's UNSC permanent membership, and both countries collaborate in global forums like the G7 and G20 on security and economic reforms.
7. **Constitutions & Governance:** Both countries have bicameral parliaments and share foundational values of liberty, equality, and fraternity from the French Revolution.

SIGNIFICANCE OF FRANCE FOR INDIA:

1. **Foreign Policy:** France supports India's UNSC membership and cooperates on global governance and regional issues.
2. **Defense:** Regular joint exercises (naval, air, army) and key projects like the Rafale jet deal (36 jets).
3. **Space:** India's ISRO and France's CNES partner in scientific and commercial space missions, strengthening bilateral space collaboration.
4. **Civil Nuclear Energy:** Both countries are advancing the 6-EPR power plant project in Jaitapur, reinforcing their commitment to nuclear energy.
5. **Counter-Terrorism:** GIGN (France) and India's National Security Guard are cooperating on counter-terrorism efforts.
6. **Critical Technology:** India and France are collaborating on digital technologies like cloud computing, artificial intelligence (AI), and quantum computing.
7. **Civil Aviation:** Both countries are expanding civil aviation routes, facilitating growth in India's aviation market.
8. **Economic Cooperation:** Bilateral trade reached $13.4 billion in 2022-23. France is India's 11th largest foreign investor, with significant investments in aerospace, defence, and technology.

INDIA'S SIGNIFICANCE FOR FRANCE:

1. **Strategic Partnership in the Indo-Pacific:** As a key player in the region, India is central to maintaining regional stability and countering China's rise. France values India as a strategic partner, particularly in defence cooperation, joint military exercises, and security in the Indo-Pacific.
2. **Economic and Trade Interests:** France views India as a growing market with immense trade

potential. With a bilateral trade of $15.8 billion and substantial French investments in India, both countries aim to expand their economic cooperation, especially in sectors like aviation, defence, and technology.

3. **Space and Technology Cooperation:** France supports India's space ambitions, providing crucial components for missions like TRISHNA. France aids India's digital infrastructure, notably through initiatives like UPI and supercomputing advancements.

4. **Global Governance and Multilateral Cooperation:** France consistently backs India's global aspirations, including its bid for a permanent seat on the UN Security Council. Both countries also collaborate on climate change initiatives, particularly through the International Solar Alliance (ISA).

5. **Cultural and People-to-People Ties:** Cultural exchanges and agreements like the Migration and Mobility Agreement (2021) strengthen bilateral relations, fostering educational, professional, and people-to-people connections.

6. **Counterterrorism and Security:** France and India cooperate closely on counterterrorism, sharing intelligence and collaborating on maritime security to protect vital sea lanes in the Indo-Pacific.

WAY FORWARD:

1. **Balancing Strategic Autonomy:** Both countries should seek flexibility in aligning their strategic priorities, with India maintaining its non-alignment stance and France pursuing pragmatic alliances, especially in the Indo-Pacific.

2. **Leveraging Cooperation Mechanisms:** Utilize frameworks like the Joint Working Group on Counterterrorism to address shared security concerns, particularly in the Indo-Pacific region.

3. **Expanding Defense Cooperation:** Increase joint military exercises, co-development of defence technologies, and knowledge-sharing to enhance strategic defence ties.

4. **Active Engagement in Multilateral Forums:** Both nations should collaborate in forums like the Quad, I2U2, and UN, advocating for common interests in global security, climate change, and economic growth.

5. **Boosting Trade and Investment:** Strengthen economic ties by removing barriers to trade, increasing investments, and collaborating on key sectors like green energy, technology, and aerospace.

6. **Cultural and Educational Exchanges:** Foster deeper people-to-people connections through educational programs, cultural exchanges, and mobility agreements to strengthen bilateral ties.

CONCLUSION

The growing India-France partnership is strategically significant across multiple domains, including defence, trade, space, and global governance. The French Carrier Strike Group's visit underscores the importance of enhancing defence cooperation and maritime security in the Indo-Pacific. With both countries prioritizing stability in the region, this visit sets the stage for further strengthening bilateral ties. India and France have forged a robust relationship, with trade, defence deals (like Rafale jets and submarines), and joint space missions advancing steadily. They also collaborate on critical global challenges such as climate change, renewable energy, and counterterrorism.

Prelims Question:

1. Consider the following countries:

1. Kuwait
2. Saudi Arabia
3. UAE
4. Iran
5. Iraq
6. Qatar
7. Bahrain

How many of the above are Gulf Cooperation Council Members?

A. Only two

B. Only three

C. Only four

D. Only five

2. Which of the following best describes India's foreign policy approach under Prime Minister Narendra Modi?

1. Emphasis on non-alignment and neutrality in global geopolitics
2. Greater engagement with global powers through a multi-alignment strategy
3. Exclusive focus on strengthening ties with Russia and China
4. Isolation from global diplomatic and economic partnerships

Choose the correct answer:

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

3. With reference to the Indian diaspora, consider the following statements:

1. The Indian diaspora is estimated to consist of approximately 30 million people across 200 countries.
2. India is the largest recipient of remittances globally, receiving over $87 billion in 2021.
3. The United Kingdom has the largest Indian diaspora population, with over 5 million people.

How many of the above-given statements are correct?

A. Only one

B. Only two

C. All three

D. None

4. With reference to the India-France relationship, consider the following statements:

1. France is India's 11th largest foreign investor, particularly in sectors such as aerospace, defence, and renewable energy.
2. The French Carrier Strike Group's visit to India in January 2025 aims to enhance bilateral trade ties and has no focus on defence cooperation.
3. France supports India's bid for a permanent seat on the United Nations Security Council (UNSC).

How many of the above-given statements are correct?

A. Only one

B. Only two

C. All three

D. None

Answers

1. D	**2. D**	**3. B**	**4. B**

MAINS QUESTION:

1. "India shares special diplomatic relations with Kuwait and other Gulf countries". In this light discuss the significance of the Gulf countries for India.

(150 words)

2. Discuss the key challenges and strategies that India must adopt to navigate its foreign policy in a multipolar world. How can India balance its relations with major powers while ensuring regional stability and energy security?

(250 words, 15 marks)

3. Discuss the role of the Indian diaspora in promoting India's national interest and highlight the challenges faced by this community. How can the Indian government strengthen its engagement with the diaspora to maximize their contribution to India's global influence?

(250 words, 15 marks)

4. The India-France partnership has grown significantly across multiple sectors, especially in defence, trade, space, and climate change. Analyze the key areas of cooperation and discuss the potential way forward for strengthening this relationship."

(250 words, 15 marks)

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THE MSME REVOLUTION: POWERING INDIA'S EXPORT GROWTH

WHY IN THE NEWS?

Micro, Small, and Medium Enterprises (MSMEs) are playing a key role in boosting India's export performance, with their exports jumping from ₹3.95 lakh crore in 2020-21 to ₹12.39 lakh crore in 2024-25. The number of exporting MSMEs has also surged, increasing from 52,849 in 2020-21 to 1,73,350 by 2024-25. In 2023-24, MSMEs contributed 45.73% to India's total exports, and this share rose to 45.79% by May 2024. This growth highlights their growing impact on the economy and global trade, solidifying their crucial role in India's trade success.



WHAT IS MSME?

MSME stands for Micro, Small, and Medium Enterprises. These are businesses classified based on their investment in plant and machinery or equipment and their annual turnover. MSMEs play a vital role in driving economic growth, creating employment, and contributing to innovation. The classification varies across different countries, but generally, MSMEs are categorized as follows:

Category	Investment in Plant and Machinery	Annual Turnover
Micro Enterprises	Up to ₹1 crore	Up to ₹5 crore
Small Enterprises	₹1 crore to ₹10 crore	₹5 crore to ₹50 crore
Medium Enterprises	₹10 crore to ₹50 crore	₹50 crore to ₹250 crore

SIGNIFICANCE OF MSME:

1. **Contribution to GDP:** MSMEs contribute nearly 30% to India's GDP, driving economic growth through a diverse range of activities in manufacturing and services.
2. **Employment Generation:** MSMEs are vital for job creation, employing millions, especially in rural and semi-urban areas, thereby helping to reduce unemployment.
3. **Rural Development:** By establishing businesses in non-urban areas, MSMEs promote infrastructure development, curb urban migration, and enhance living standards in rural communities.
4. **Women Empowerment:** MSMEs create opportunities for women entrepreneurs, fostering financial independence and contributing to gender equality and economic development.
5. **Formalization of the Economy:** MSMEs aid in formalizing the economy by encouraging business registration and improving access to government schemes and credit, leading to better tax compliance.
6. **Role in Exports:** MSMEs significantly impact India's export sector, enhancing competitiveness in global markets, particularly in textiles, handicrafts, engineering, and agriculture.

GOVT. INITIATIVES TO UPGRADE MSME SECTOR:

1. **MUDRA Scheme (Micro Units Development and Refinance Agency):** Provides financial support to micro and small businesses through three loan categories: Shishu, Kishore, and Tarun, ensuring easier access to credit.
2. **PMEGP (Prime Minister's Employment Generation Programme):** Aimed at generating employment by promoting self-employment ventures through subsidies and financial assistance for setting up new micro-enterprises.
3. **Stand-Up India Scheme:** Promotes entrepreneurship among women, SC/ST, and OBC communities by providing loans for setting up greenfield enterprises.
4. **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):** Offers collateral-free loans to MSMEs, encouraging banks to lend to small businesses without the need for tangible security.
5. **Atmanirbhar Bharat Package:** Aimed at making MSMEs more self-reliant by providing financial support, creating a conducive environment, and boosting production and exports.
6. **Technology Upgradation Fund Scheme (TUFS):** Focuses on modernizing technology in the MSME sector by offering financial assistance for the adoption of new technology.
7. **MSME Databank:** A platform that collects and maintains data on MSMEs, helping in better policy formulation, access to credit, and government schemes.
8. **National Manufacturing Competitiveness Programme (NMCP):** Promotes competitiveness in the MSME sector by providing financial and technical support, including quality certification and market development initiatives.
9. **Udyog Aadhar Registration:** Simplifies the registration process for MSMEs, enabling businesses to access various government benefits and schemes quickly.

CHALLENGES FACE BY MSME IN INDIA:

1. **Access to Finance:** Despite various government schemes, many MSMEs struggle with accessing timely and adequate finance due to collateral requirements and complex loan processes.
2. **Lack of Technological Upgradation:** Many MSMEs lack the resources to invest in modern technologies, limiting their competitiveness in the global market.
3. **Inadequate Infrastructure:** Poor infrastructure, especially in rural areas, hampers the growth of MSMEs, affecting their productivity and market reach.
4. **Regulatory Hurdles:** Complex regulatory processes, including taxes and compliance requirements, create barriers for MSMEs to function efficiently.
5. **Market Access:** MSMEs often face challenges in accessing larger and international markets due to a lack of awareness, marketing expertise, and competitive pricing.
6. **Skilled Labor Shortage:** There is a lack of skilled labour, which limits MSMEs' potential for growth and productivity, especially in specialized industries.
7. **Competition from Larger Firms:** MSMEs face intense competition from large enterprises, which can leverage economies of scale, better technology, and larger marketing budgets.

WAY FORWARD:

1. **Promote Financial Inclusion:** Expanding access to finance through simplified loan schemes and strengthening the banking system's support for MSMEs.
2. **Focus on Skill Development:** Investment in skill development and training programs for MSME workers to bridge the labour skill gap and improve productivity.
3. **Encourage Technology Adoption:** Supporting MSMEs in upgrading their technology and adopting automation to improve production efficiency and global competitiveness.
4. **Ease of Doing Business:** Streamlining regulatory processes, reducing compliance burdens, and providing MSMEs with a simpler framework for doing business.

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5. **Market Linkages:** Creating more opportunities for MSMEs to access domestic and international markets through digital platforms and trade fairs.
6. **Strengthen Infrastructure:** Building better infrastructure in rural and semi-urban areas to support MSME operations and reduce logistical costs.
7. **Government Support for Innovation:** Encouraging innovation within the MSME sector through incentives for R&D and technology-driven solutions.

CONCLUSION

MSMEs are a cornerstone of India's economic growth, contributing significantly to GDP, employment, rural development, and exports. While government initiatives have significantly supported the sector, challenges like access to finance, technology, and skilled labour persist. By addressing these challenges and focusing on creating an enabling environment, MSMEs can realize their full potential, becoming a driving force in India's continued economic success on the global stage.

EMPOWERING 'ANNADATAS' FOR A PROSPEROUS NATION

WHY IN THE NEWS:

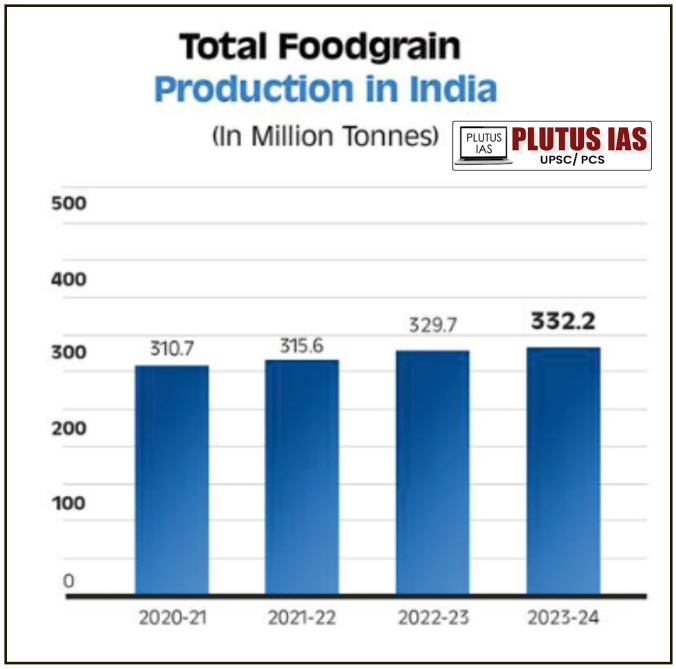
Farmers, revered as the lifeblood of the nation and 'Annadatas,' form the foundation of India's prosperity. Their relentless efforts not only feed the population but also sustain the rural economy and strengthen households across the country. National Farmers' Day, observed on 23rd December, commemorates their invaluable contribution and coincides with the birth anniversary of Shri Chaudhary Charan Singh, India's fifth Prime Minister. Known for his deep understanding of rural issues and steadfast advocacy for farmers' welfare.

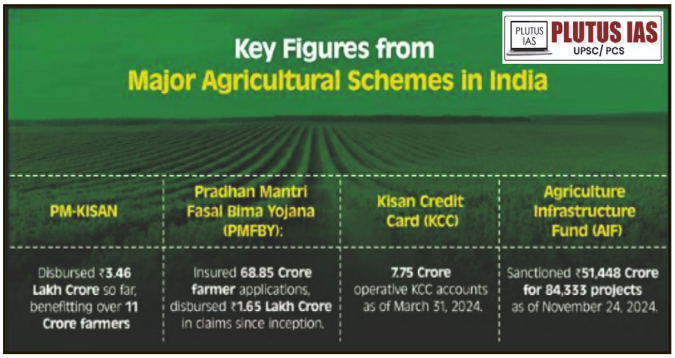
ROLE OF FARMERS IN NATION-BUILDING

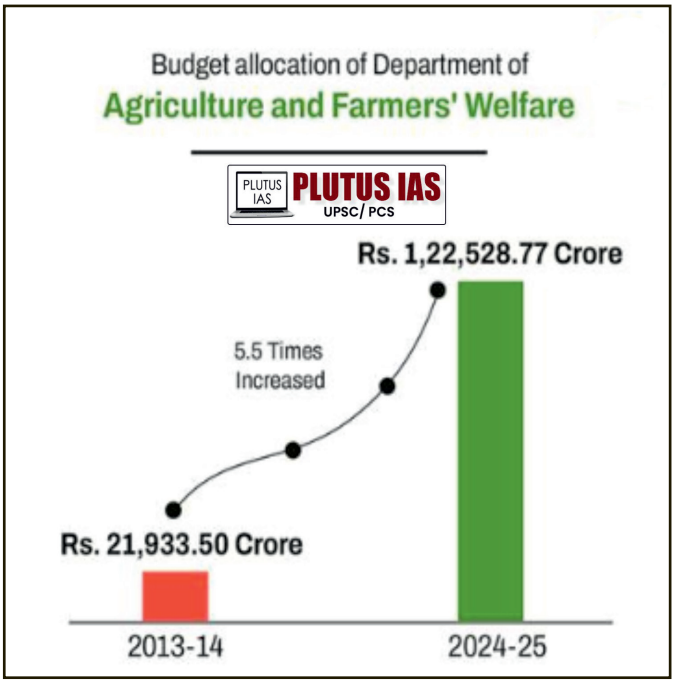
1. **Employment Generation**: Nearly half of India's population is employed in the agricultural sector, making it a critical source of livelihood and a driver of socio-economic stability.
2. **Economic Contribution**: Agriculture contributes significantly to the nation's economy, with 17.7% of the Gross Value Added (GVA) at current prices in FY 2023-24 coming from this sector.
3. **Extensive Agricultural Land**: India has approximately 54.8% of its 328.7 million hectares classified as agricultural land, showcasing the vast scope and importance of farming for the country's development.
4. **High Cropping Intensity**: With a cropping intensity of 155.4% (as per the Land Use Statistics for 2021-22), Indian farmers maximize land use efficiency, ensuring higher productivity and food security.
5. **Food Security**: Farmers play a central role in feeding the nation, ensuring food availability for over 1.4 billion people, and contributing to global food supplies.
6. **Rural Development**: By fostering agricultural growth, farmers act as catalysts for rural development, improving infrastructure, income levels, and living standards in rural areas.
7. **Sustaining Livelihoods**: The agricultural sector supports millions of smallholder and marginal farmers, providing a foundation for their economic and social well-being.
8. **Resilience and Innovation**: Through their hard work and adoption of innovative farming practices, farmers contribute to building a resilient agricultural system capable of withstanding climate challenges and ensuring long-term sustainability.

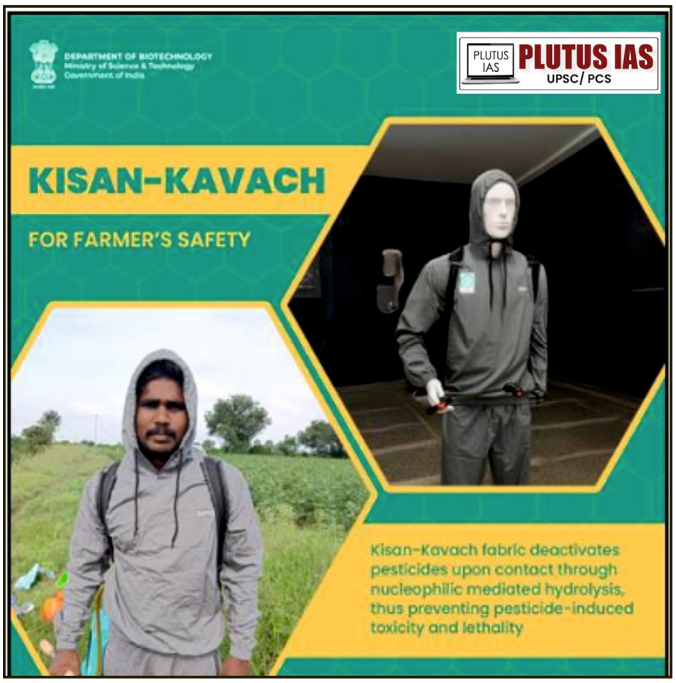


MAJOR GOVERNMENT INITIATIVES:









Pradhan Mantri Kisan MaanDhan Yojana (PM-KMY)	Launched on 12th September 2019, PM-KMY provides security to vulnerable farmer families by offering a monthly pension. Farmers between the ages of 18 to 40 contribute monthly to the scheme, which is matched by the government. The Life Insurance Corporation (LIC) manages the pension fund. As of 25th November 2024, over 24.66 lakh farmers have enrolled in the scheme, offering a financial safeguard during their old age.
Modified Interest Subvention Scheme (MISS)	The Modified Interest Subvention Scheme (MISS) provides concessional short-term agri-loans with a 7% interest rate on loans up to ₹3.00 lakh, plus an additional 3% subvention for timely repayment, reducing the effective rate to 4%. Since 2014-15, institutional credit flow to agriculture has nearly tripled from ₹8.5 lakh crore to **₹25.48 lakh crore** by 2023-24. The disbursement of easy and concessional crop loans has more than doubled, with the interest subsidy through KCC increasing 2.4 times to ₹14,252 crore in 2023-24.
Kisan Credit Card (KCC)	Introduced in 1998, the Kisan Credit Card (KCC) scheme provides farmers with easy access to agricultural inputs and cash for their production needs. In February 2019, RBI extended the KCC facility to Animal Husbandry and Fisheries for their working capital requirements. As of 31st March 2024, there are **7.75 crore operative KCC accounts**.
Agriculture Infrastructure Fund (AIF)	The Agriculture Infrastructure Fund (AIF) Scheme, launched in 2020 under the Atmanirbhar Bharat Package, supports sustainable agriculture by financing infrastructure projects across India. It provides loans up to ₹2 crore with a capped interest rate of 9%, along with a 3% annual interest subvention and reimbursement of credit guarantee fees for up to seven years, ensuring affordability for beneficiaries. As of 24th November 2024, ₹51,448 crore has been sanctioned for 84,333 projects under AIF.

CHALLENGES FACED BY FARMERS

1. **Unpredictable Weather**: Climate change has led to erratic weather patterns, adversely affecting crop yields. For instance, India's sugarcane yields have suffered due to droughts and excessive rains, potentially lowering sugar production below consumption levels for the first time in eight years.

2. **Limited Market Access**: Farmers often struggle to access fair markets due to inadequate infrastructure and exploitation by intermediaries. This limits their ability to obtain fair prices for their produce.

3. **Low Income and Debt**: A significant number of farmers (86%) are small and marginal, owning less than 2 hectares of land, which limits their income potential.

4. **Fragmented Landholdings**: The predominance of small and fragmented landholdings reduces productivity and limits the scope for mechanization and large-scale farming.

5. **Soil Degradation**: Overuse of fertilizers and pesticides, along with intensive farming practices, have led to declining soil fertility, adversely affecting crop yields.

6. **Water Scarcity**: Dependence on monsoons and inefficient irrigation systems cause water shortages, hampering crop cultivation. Farmers in regions like Marathwada face chronic water shortages, exacerbated by climate change and overuse of groundwater.

7. **Post-Harvest Losses**: Lack of adequate storage, transportation, and processing facilities results in significant post-harvest losses, reducing farmers' incomes.

8. **Limited Awareness of Modern Techniques**: Many farmers lack access to modern agricultural technologies, training, and resources, hindering productivity improvements.

9. **Price Volatility**: Fluctuations in market prices of crops make it difficult for farmers to plan and earn stable incomes. For example, recent policy changes regarding export restrictions have led to dissatisfaction among farmers, as they had already sold their produce at low prices before the restrictions were lifted.

10. **Policy and Subsidy Gaps**: Delayed implementation of policies, inadequate subsidies, and bureaucratic hurdles often prevent farmers from reaping the intended benefits of government schemes.

WAY FORWARD FOR STRENGTHENING INDIAN AGRICULTURE

1. **Formalizing Agricultural Economy with PM-AASHA**: PM-AASHA (Pradhan Mantri Annadata Aay Sanrakshan Abhiyan) ensures remunerative prices for farmers by strengthening procurement mechanisms. In 2023-24, over ₹10,000 crore was allocated to enhance market access for farmers, stabilizing incomes and reducing exploitation by intermediaries.

2. **Basic Minimum Income Schemes**: Programs like PM-Kisan provide direct income support of ₹6,000 annually to over 11 crore farmers.

3. **Empowering Women Farmers**: Providing land ownership and access to financial aid enables women farmers to play a more active role in agriculture.

4. **Formal Credit Access through Priority Sector Lending (PSL)**: Banks disbursed ₹20.39 lakh crore under PSL for agriculture in FY 2022-23, boosting farmers' access to formal credit. The Credit Guarantee Scheme for e-NWRs (2024) ensures post-harvest financing for farmers, reducing dependence on informal lenders.

5. **Weather Prediction via Mission Mausam**: Strengthened weather forecasting systems help farmers plan effectively, reducing losses from erratic weather. New satellite data integration under Mission Mausam aims to provide precise weather predictions and agro-advisories.

6. **Promoting Organic and Group Farming**: The formation of 10,000 FPOs (Farmer Producer Organizations) with a ₹6,865 crore budget enhances collective farming and promotes sustainable agriculture. The National Mission on Natural Farming (2024) promotes chemical-free farming practices with an outlay of ₹2,481 crore.

7. **Enhancing Cold Storage and Warehousing Facilities**: Current storage capacity is only 70% of the required levels, leading to 20-30% post-harvest losses in perishables. Investments under the Agri-Infrastructure Fund aim to develop 35 million tonnes of storage capacity by 2026.

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8. **Focus on Research and Development with Reduced Subsidies**: Shifting focus from subsidies to investments in agricultural R&D ensures long-term productivity. Initiatives like the Clean Plant Programme (₹1,765 crore) and Digital Agriculture Mission (₹2,817 crore) enhance innovation and precision farming.

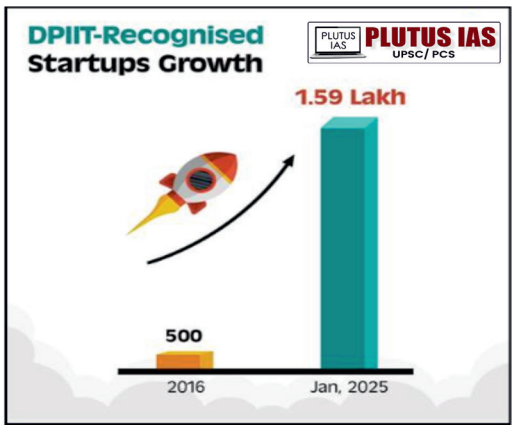
CONCLUSION

The Government of India's initiatives reflect a strong commitment to empowering farmers and fostering sustainable agricultural growth. Programs like PM-KISAN, PMFBY, Namo Drone Didi, and Digital Agriculture Mission enhance financial security, productivity, and market access. Achievements in food grain production and transformative schemes like the Clean Plant Programme and National Mission on Natural Farming strengthen the agricultural ecosystem. These efforts ensure farmers, the 'Annadatas,' remain integral to India's development, building a resilient and prosperous future.

"Startup India: Igniting Innovation, Empowering Entrepreneurs, Boosting the Economy"

WHY IN THE NEWS?

India celebrated the 9th anniversary of the Startup India initiative, launched in 2016 as a flagship program of the Government of India. Designated as National Startup Day, this occasion highlights the nation's remarkable progress in fostering a dynamic and inclusive entrepreneurial ecosystem.



THE STARTUP CULTURE IN INDIA:

1. **DPIIT-Recognized Startups**: The number of recognized startups has grown from **500 in 2016** to **1,59,157 as of January 15, 2025**, reflecting a vibrant and thriving entrepreneurial culture.
2. **Women Entrepreneurs**: By October 31, 2024, **73,151 startups** included at least one woman director, highlighting the rise of women entrepreneurs and their crucial role in shaping India's startup landscape.
3. **Job Creation**: Startups have generated **over 16.6 lakh direct jobs** between 2016 and October 31, 2024, significantly contributing to India's employment and economic growth.
4. **Global Recognition**: India ranks as the **third-largest startup ecosystem** in the world, demonstrating its prowess on the global stage.
5. **Unicorn Boom**: With over **100 unicorns**, Indian startups are redefining global innovation and showcasing entrepreneurial success.
6. **Regional Expansion**: While major hubs like **Bengaluru, Hyderabad, Mumbai, and Delhi-NCR** lead the transformation, smaller cities are emerging as key contributors to India's entrepreneurial momentum.
7. **Sectoral Excellence**: Startups in sectors like **fintech, edtech, health tech, and e-commerce** have addressed local challenges and earned global acclaim.
8. **Inspiring Success Stories**: Companies such as **Zomato, Nykaa, and Ola** embody India's shift from a nation of job seekers to job creators, driving economic development and inspiring future entrepreneurs.



Key Facts of the Startup India Scheme:

- **Launched**: The Startup India scheme was launched by the Government of India on January 16, 2016, to promote entrepreneurship and innovation.
- **Benefits**: Offers tax incentives, legal support, and funding options.
- **Goals**: Aim to reduce regulatory burden, promote innovation, and create jobs.
- **Eligibility**: Available to startups within 10 years of incorporation.
- **Self-certification**: Startups can self-certify compliance with certain labor and environmental laws.
- **Funding**: Provides funding for startups, including those led by women and from SC/ST communities.
- **Legal Support**: Offers low-cost legal assistance and fast-track patent processing.
- **Tax Incentives**: Includes capital gains tax exemptions and other tax benefits.
- **Seed Fund**: The Startup India Seed Fund Scheme (SISFS) provides financial assistance to early-stage startups.

SCHEMES AND SUPPORT UNDER THE STARTUP INDIA INITIATIVE

Startup India Seed Fund Scheme (SISFS)

Launched for a four-year period starting from 2021-22 with a corpus of ₹945 crore, the scheme supports startups in areas like proof of concept, prototype development, product trials, market entry, and commercialisation.

Operational since 1st April 2021, the scheme is overseen by the Experts Advisory Committee (EAC), which evaluates and selects incubators for fund allocation.

As of October 31, 2024, the EAC has approved 213 incubators, which have in turn selected 2,490 startups for a total approved funding of Rs 454.04 crore.

CREDIT GUARANTEE SCHEME FOR STARTUPS (CGSS)

The scheme offers credit guarantees for loans provided to DPIIT-recognised startups by Scheduled Commercial Banks, NBFCs, and Venture Debt Funds under SEBI-registered Alternative Investment Funds.

Implemented by the National Credit Guarantee Trustee Company Limited (NCGTC), it aims to provide a credit guarantee up to a specified limit to eligible startups.

Under this scheme, ₹555.24 crore in loans were guaranteed to 235 startups, including ₹24.60 crore to 18 women-led startups as of October 31, 2024.

FUND OF FUNDS FOR STARTUPS (FFS) SCHEME

Introduced in June 2016 with a corpus of ₹10,000 crore, the Fund of Funds for Startups (FFS) aims to enhance access to domestic capital for Indian startups and boost the entrepreneurial ecosystem.

The scheme, managed by SIDBI, does not invest directly in startups but provides funding to SEBI-registered Alternative Investment Funds (AIFs), which further invest in startups through equity and equity-linked instruments.

By 2024, ₹11,148 crore was committed, catalyzing investments of ₹21,221.36 crore in 1,165 startups.

SIGNIFICANCE OF THE STARTUP INDIA INITIATIVE:

Key Contribution	Details
Boosting Domestic Capital	₹10,000 crore Fund of Funds for Startups (FFS) launched in 2016 to enhance access to capital.
Innovative Funding Approach	Managed by SIDBI, funding is provided through SEBI-registered Alternative Investment Funds (AIFs).
Significant Financial Commitment	By 2024, ₹11,148 crore committed, catalyzing investments across the startup ecosystem.
Economic Multiplier Effect	Investments of ₹21,221.36 crore mobilized across 1,165 startups, amplifying economic impact.
Employment Generation	Over 16.6 lakh direct jobs were created by recognized startups from 2016 to October 31, 2024.
Empowering Women Entrepreneurs	73,151 startups (as of October 31, 2024) include at least one woman director, promoting women empowerment.
Encouraging Entrepreneurship	Enabled startups to innovate and scale, fostering entrepreneurship as a key driver of economic growth.
Sector-Wide Growth	Supported startups across industries like technology, health, and finance, driving sectoral innovation.
Strengthening Global Position	Established India as the third-largest startup ecosystem globally, attracting international recognition.
Fostering Inclusive Growth	Promoted inclusivity by supporting entrepreneurs from all backgrounds, including women and non-metro regions.

CHALLENGES FACED BY STARTUPS IN INDIA:

1. **Funding Constraints:** Despite significant investments from government initiatives and venture capitalists, access to early-stage funding remains a challenge. According to NASSCOM, over 90% of startups fail due to lack of funds, especially in the first 2-3 years.
2. **Regulatory and Compliance Burdens:** A 2022 study by Deloitte found that 52% of Indian startups face challenges in regulatory compliance, especially in sectors like fintech, healthcare, and e-commerce.
3. **Talent Acquisition and Retention:** A shortage of skilled talent, particularly in emerging technologies such as AI, blockchain, and data science, is a major hurdle. According to the 2023 Startup Ecosystem Report, over 60% of startups cite talent acquisition as a major challenge, with high turnover rates in technical roles.
4. **Market Access and Competition:** Startups often find it difficult to access a wide customer base, competing with established industry giants. A report by McKinsey suggests that 70% of Indian startups face significant competition from well-established brands, making market entry and brand recognition a prolonged struggle.
5. **Infrastructure and Resources:** While tier-1 cities like Bengaluru and Delhi have thriving startup ecosystems, startups in smaller cities and rural areas often face limited access to essential infrastructure, technology, and mentorship. A 2021 study by the World Bank showed that 67% of Indian startups are concentrated in metro

cities, leaving rural areas underserved.

6. **Cultural Barriers:** Entrepreneurship is still viewed with caution in many regions. In a 2020 survey by the Indian School of Business, 44% of respondents from non-metro areas cited societal pressures and fear of failure as major deterrents for pursuing entrepreneurship.

7. **Access to Networks and Mentorship:** Many startups in India struggle to connect with experienced mentors and investors. According to a 2021 survey by TiE Global, over 40% of entrepreneurs reported difficulty in finding industry-specific mentors or networks, limiting their ability to scale.

8. **Lack of Effective Marketing Strategies:** Many startups struggle to develop effective marketing strategies due to budget constraints and limited marketing expertise. According to a 2022 survey by KPMG, 58% of startups in India cited marketing and customer acquisition costs as one of their top challenges.

WAY FORWARD FOR STARTUPS IN INDIA:

1. **Enhancing Access to Funding**: Expand funding through angel networks, crowdfunding, and government schemes like the Fund of Funds for Startups (FFS).

2. **Simplifying Regulations**: Streamline regulatory processes and reduce delays as per the Startup India Annual Report 2023. Create a startup-friendly legal and tax environment to ease compliance burdens (DPIIT).

3. **Fostering Corporate Collaboration**: Encourage partnerships between startups and corporations for market access and resources. Develop regional incubators and accelerators to foster innovation (National Startup Advisory Council).

4. **Building a Skilled Workforce**: Align academic curriculums with industry needs and promote industry-academia partnerships. According to NASSCOM (2023), 56% of startups struggle to find the right talent, emphasizing the need for skilled training programs.

5. **Promoting Rural and Inclusive Innovation**: Strengthen infrastructure in tier-2 and tier-3 cities and support rural and women-led startups. Aligned with Atmanirbhar Bharat to promote balanced regional development.

6. **Developing Innovation in Emerging Sectors**: Focus on sectors like biotechnology, clean energy, and sustainability with dedicated policies and funding.

7. **Supporting Sustainable Startups**: Promote eco-friendly startups in clean energy and waste management through government initiatives. Foster socially responsible businesses addressing healthcare, education, and rural development (National Rural Livelihood Mission).

CONCLUSION

The Startup India initiative has transformed India into a global innovation hub, with over 1.59 lakh recognized startups and a growing workforce. The initiative has empowered startups across sectors, including non-metro areas through flagship schemes, capacity-building efforts, and platforms like BHASKAR. As India moves forward, the Startup India program remains crucial in driving economic growth and fostering a dynamic entrepreneurial ecosystem.

A GLOBAL SHOWCASE OF INDIA'S FOOD ECONOMY: INDUSFOOD 2025

WHY IN THE NEWS?

Indusfood 2025 is making headlines as Asia's premier Food and Beverage Trade Show, with its 8th edition inaugurated by Shri Chirag Paswan, Union Minister of Food Processing Industries. Organized by the Trade Promotion Council of India (TPCI), the event has evolved into a global platform, marking a significant milestone this year by expanding its scope to an integrated farm-to-fork trade show, underscoring India's commitment to sustainable and comprehensive food systems. Indusfood's growing international participation, with global exhibitors in 2024 and even more this year, highlights its

expanding role in connecting businesses worldwide with India's vibrant food and beverage sector. It not only reinforces India's position in the global food market but also emphasizes sustainability in food production, positioning Indusfood as a critical business and networking hub for industry stakeholders.

WHAT IS INDUSFOOD?

Indusfood is Asia's premier Food and Beverage (F&B) Trade Show, organized by the Trade Promotion Council of India (TPCI) with support from the Department of Commerce. Since its inception in 2017, it has served as a key platform to showcase India's growing food and beverage industry while connecting Indian businesses with international markets. The event highlights India's diverse agricultural capabilities, the potential of its processed food sector, and the country's commitment to sustainable food systems. Indusfood features exhibitors from India and around the world, providing networking opportunities, business deals, and partnerships in the global food sector. It is known for its significant role in driving food exports, fostering innovation, and facilitating trade and collaboration across various segments of the food, agriculture, and manufacturing industries.

KEY HIGHLIGHTS OF INDUSFOOD:

1. **Exhibitors and Scale:** The event will feature 1,800 exhibitors from over 20 countries, covering an expansive exhibition space of more than 80,000 square metres, showcasing the scale and global reach of the trade show.

2. **International Participation:** Indusfood 2025 is expected to attract over 5,000 international buyers from 180+ countries, along with over 100 supermarket chains and e-retailers, facilitating global business connections.

3. **Farm-to-Fork Focus:** This edition marks a significant milestone with the transition into an integrated farm-to-fork trade show, highlighting India's commitment to sustainable and comprehensive food systems.

4. **Global Audience:** The event will feature 35 international chefs and 100 Indian delegates, offering Indian food companies the opportunity to reach new markets beyond the Indian diaspora and engage with global populations.

5. **Concurrent Shows:** Alongside Indusfood, the 2025 edition will host two key events: Indusfood Manufacturing, focused on food manufacturing solutions, and Indusfood Agritech, showcasing innovations in agriculture, aquaculture, and dairy farming.

6. **Growth and Impact:** Indusfood has witnessed remarkable growth since its inception in 2017, evolving from a national trade show to a global platform that plays a crucial role in promoting India's food and beverage exports and positioning it as a hub for international trade and investment.



GOVT INITIATIVES WERE TAKEN TO PROMOTE INDUSFOOD:

1. **National Food Security Mission (NFSM):** Boosts production of essential crops like wheat, rice, pulses, and cereals, ensuring a steady supply for the food industry.

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2. **Operation Greens:** Enhances the value chain for tomatoes, onions, and potatoes, stabilizing prices and improving production efficiency.

3. **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY):** Provides food security to the poor, ensuring consistent demand for agricultural products.

4. **PM POSHAN Scheme:** Improves child nutrition in schools, indirectly boosting demand for processed food products.

5. **Mega Food Park Scheme:** Creates infrastructure connecting farmers, processors, and retailers, facilitating growth in food processing and exports.

6. **Production Linked Incentive Scheme (PLISFPI):** Encourages innovation and high-quality food product manufacturing, enhancing global competitiveness.

7. **PLI Scheme for Millet-based Products:** Promotes millet production and exports, positioning India as a global leader in healthy food options.

8. **Pradhan Mantri Kisan Sampada Yojana (PMKSY):** Aims to improve the food processing sector, enhance value addition to agricultural and marine products, reduce wastage, provide better returns to farmers, and create agro-processing clusters, thereby boosting exports and generating rural employment.

INDUSFOOD CONTRIBUTION INDIAN ECONOMY:

1. **Boosted Exports:** Indusfood has played a pivotal role in increasing India's food and beverage exports, especially in the processed food sector, by connecting Indian businesses with global buyers and opening new international markets for Indian products.

2. **Enhanced Visibility:** The event has helped raise India's profile in global markets, positioning the country as a competitive player in the international food industry and attracting attention from global businesses and investors.

3. **Facilitated Networking and Collaboration:** Indusfood provides a platform for networking, fostering collaborations and partnerships between Indian producers and international buyers, strengthening business ties and creating long-term trade relationships.

4. **Business Deals and Trade Growth:** The trade show facilitates on-the-spot business deals, accelerating trade and ensuring the quick global distribution of Indian food products, thus enhancing India's share in the global food trade.

5. **Attraction of Investment:** Indusfood helps attract both domestic and foreign investment in India's food and beverage sector, driving innovation, infrastructure development, and overall growth.

ISSUES ASSOCIATED WITH THE FOOD ECONOMY:

1. **Food Security:** Climate change and unsustainable farming threaten food production. Limited access to food due to poverty and insufficient income. Uneven food distribution, especially between urban and rural areas.

2. **Poverty:** Low wages and unstable employment prevent access to food. Gender inequality limits women's access to resources and opportunities.

3. **Climate Change:** Extreme weather events like floods, droughts, and rising temperatures disrupt food production. The expansion of biofuels reduces land available for food crops.

4. **Food Waste:** Inefficient storage, poor distribution, and supply chain issues lead to significant food wastage.

5. **Other Issues:** Corruption in food distribution impacts quality and availability. Natural disasters disrupt food production and access. Health constraints, such as diseases like HIV/AIDS, limit people's ability to work and access food.

CONCLUSION

Indusfood 2025 marks a significant milestone in the growth of India's food and beverage industry, showcasing the nation's expanding potential in the global market. As an integrated farm-to-fork trade show, it not only highlights India's diverse agricultural capabilities but also underscores its commitment to sustainable food systems. The event's impressive

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scale, with participation from exhibitors, international buyers, chefs, and industry professionals, demonstrates the growing influence of India's food economy. With concurrent shows like Indusfood Manufacturing and Indusfood Agritech, the event further cements its role as a comprehensive platform for fostering global business partnerships and driving innovation across the food and agricultural sectors. Indusfood continues to play a vital role in positioning India as a hub for international trade, offering immense opportunities for growth, collaboration, and investment in the food industry.

Prelims Question:

1. With reference to the role of MSMEs in India's economy, consider the following statements:

1. MSMEs contribute nearly 30% to India's GDP.
2. MSMEs are not involved in the export sector of the economy.
3. The MUDRA Scheme provides financial support to micro and small businesses.

How many of the above-given statements are correct?

A. Only one

B. Only two

C. All three

D. None

2. What is the primary aim of the Clean Plant Programme (CPP) is:

(A) To promote organic farming practices

(B) To provide disease-free planting material for horticulture crops

(C) To enhance the irrigation infrastructure for agriculture

(D) To support rural electrification for agricultural purposes

3. Which of the following is/are core features of the Startup India Initiative?

1. Easy of doing business
2. Tax Exemption
3. Funding Support
4. Sector Specific policies.

Select the correct answer using the code given below:

(a) Only one

(b) Only two

(c) Only three

(d) All four

4. Which of the following initiatives are aimed at promoting the food processing industry in India?

1. National Food Security Mission (NFSM)
2. Operation Greens
3. Mega Food Park Scheme
4. Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)

Select the correct answer from the options given below:

A. 1, 2 and 3 only

B. 3, 4 and 5 only

C. 1, 3 and 4 only

D. 1, 2, 3 and 4 only-

Answers

1. A	2. B	3. D	4. C

Mains Question:

1. Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in driving India's economic growth, contributing significantly to GDP, employment, and exports. Discuss the key challenges faced by MSMEs and suggest measures for their sustainable growth.

(250 words, 15 marks)

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2. Discuss the recent initiatives taken by the Government of India to improve farmers' income. Critically analyze whether these initiatives are sufficient to achieve the goal of doubling farmers' income.

(Answer in 250 words)

3. Evaluate the impact of the Startup India Programme on fostering innovation and entrepreneurship in India.

(Answer in 150 words)

4. Discuss the impact of Indusfood on India's food economy, its contribution to international trade, and how it aligns with the government's initiatives to promote food security and food processing industries.

(250 words, 15 marks)





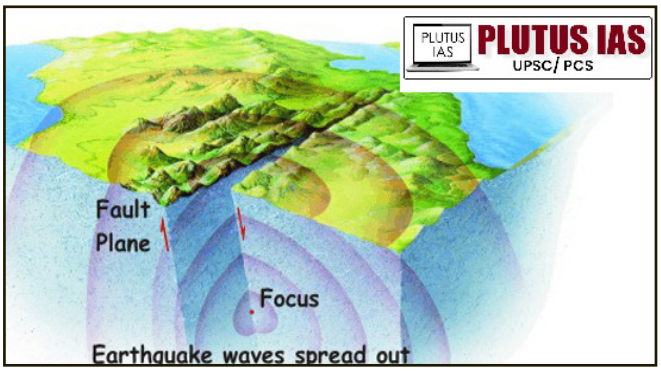
POWERFUL EARTHQUAKE STRIKES VANUATU, TREMORS FELT ACROSS THE ISLANDS

WHY IN THE NEWS?

A 6.1 magnitude earthquake rocked Vanuatu on Sunday morning, just hours before a suspension on commercial flights to the island nation was scheduled to be lifted. The quake, which hit near the capital Port Vila, caused building tremors but did not result in widespread damage or trigger a tsunami warning. This comes just days after a more deadly 7.3 magnitude earthquake. Leading to a seven-day state of emergency and a night curfew. While commercial flights were set to resume, aiding the tourism industry and allowing stranded travellers to return home for Christmas, the latest seismic event has raised concerns about the stability of the region.

WHAT IS AN EARTHQUAKE?

An earthquake is the shaking of the ground caused by the sudden release of energy in the Earth's crust. This energy release generates seismic waves, which cause the ground to move. Earthquakes can vary in size, from small tremors that are barely felt to large, destructive events.



CAUSES OF EARTHQUAKES:

1. **Tectonic Plate Movement:** The Earth's crust is divided into large plates called tectonic plates. These plates are constantly moving, and when they collide, slide past each other, or pull apart, stress builds up at the boundaries. When this stress is released, it causes an earthquake.
2. **Volcanic Activity:** Earthquakes can also occur as a result of volcanic activity. When magma forces its way to the surface, it can cause the surrounding rocks to crack, triggering an earthquake.
3. **Human Activities:** Activities like mining, drilling, or injecting fluids into the ground (such as fracking) can also induce earthquakes.

TYPES OF EARTHQUAKES:

1. **Tectonic Earthquakes:** The most common type, caused by the movement of tectonic plates.
2. **Volcanic Earthquakes:** Caused by volcanic eruptions or magma movement beneath the Earth's surface.
3. **Collapse Earthquakes:** Smaller quakes that occur when underground caves or mines collapse.

TRIGGERING FACTORS:

1. **Tectonic Plate Movements:** Earthquakes occur when plates collide, slide past each other, or move apart along plate boundaries (convergent, divergent, and transform boundaries).
2. **Volcanic Activity:** Magma movement beneath the Earth's crust creates pressure, leading to volcanic earthquakes before, during, or after eruptions.
3. **Human Activities:** Human activities can also trig-

ger earthquakes. Mining causes stress in rocks, potentially leading to small tremors. Fracking injects fluids into rocks, causing faults to slip and induce seismicity. Reservoir-Induced Seismicity occurs when large dams and reservoirs alter pressure on the Earth's crust, sometimes triggering earthquakes

4. **Faulting:** Sudden movement along faults in the Earth's crust causes earthquakes.
5. **Isostatic Rebound:** As glaciers melt, the Earth's crust adjusts, triggering small earthquakes.
6. **Overburden Pressure:** Accumulation of layers of rock or sediment can cause stress that results in earthquakes.
7. **Cave or Mine Collapse:** The collapse of underground cavities can trigger small tremors.
8. **Meteorite Impacts:** Large meteorite strikes can create seismic waves.

REGIONAL DISTRIBUTION:

1. **Pacific Ring of Fire:** The most active region around the Pacific Ocean, with frequent quakes due to plate boundaries. (e.g., Japan, Indonesia, Chile)
2. **Himalayan Region:** Earthquakes caused by the collision of the Indian and Eurasian plates. (e.g., Nepal, India, Pakistan)
3. **Mid-Atlantic Ridge:** Divergent boundary where plates pull apart, triggering quakes. (e.g., Iceland)
4. **Alpide Belt:** Earthquakes due to the collision of African and Eurasian plates. (e.g., Italy, Turkey, Iran)
5. **San Andreas Fault (California):** Transform fault between the Pacific and North American plates. (e.g., California, USA)
6. **Anatolian Fault (Turkey):** Transform fault between the Eurasian and Arabian plates. (e.g., Turkey)
7. **Indian Ocean:** Subduction zones around the Indian Plate cause frequent earthquakes. (e.g., Indonesia, Sumatra)
8. **East African Rift Zone:** Divergent boundary where the African continent is splitting. (e.g., Ethiopia, Kenya)
9. **New Madrid Seismic Zone:** Intraplate earthquakes in central USA. (e.g., Missouri, Arkansas)

WHY IS IT MORE PREVALENT IN THE PACIFIC RING OF FIRE?

1. **Tectonic Plate Boundaries:** The Ring of Fire is surrounded by multiple convergent, divergent, and transform plate boundaries where plates interact:

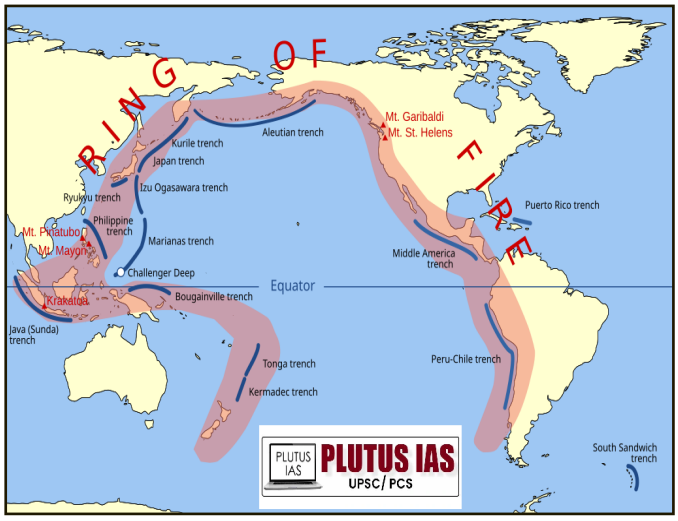
Convergent boundaries: Plates collide or one is forced beneath another, leading to subduction zones, which are prone to earthquakes (e.g., Japan, Indonesia).

Transform boundaries: Plates slide past each other, causing friction and earthquakes (e.g., California's San Andreas Fault).

Divergent boundaries: Plates pull apart, creating tension and seismic activity (e.g., the mid-ocean ridges).

2. **Subduction Zones:** Many of the Pacific Plate's boundaries involve subduction, where oceanic plates are pushed beneath continental plates. This generates huge amounts of seismic energy, triggering powerful earthquakes and volcanic eruptions (e.g., the 2004 Indian Ocean earthquake).
3. **Volcanic Activity:** The Ring of Fire is known for volcanic activity, which often accompanies earthquakes. As magma moves beneath the Earth's crust, it can cause the crust to crack, triggering earthquakes.
4. **Frequent Plate Movements:** The constant movement of the Pacific Plate, the largest tectonic plate, against neighboring plates creates continuous stress, making the area highly seismically active.

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CONSEQUENCES OF EARTHQUAKE:

Consequence	Description
1. Ground Shaking	Immediate shaking causing the collapse of buildings, bridges, and infrastructure, leading to fatalities, injuries, and significant damage.
2. Surface Rupture	Cracks or displacements in the Earth's surface that damage roads, railways, pipelines, and buildings.
3. Tsunamis	Underwater earthquakes displacing large volumes of water, creating massive waves that flood coastal areas and cause widespread destruction and loss of life.
4. Landslides	Earthquakes triggering landslides, especially in mountainous areas, burying homes, roads, and infrastructure.
5. Fires	Broken gas lines, electrical failures, and damaged infrastructure leading to uncontrollable fires.
6. Infrastructure Damage	Collapsing buildings, bridges, roads, and communication systems, hindering rescue efforts and prolonging recovery.
7. Economic Impact	Massive economic losses due to the destruction of homes, businesses, infrastructure, and long-term economic disruption.
8. Human Displacement	Thousands of people displaced, often living in temporary shelters with limited access to food, water, and medical services.
9. Environmental Damage	Damage to ecosystems, disruption of water supplies, and adverse effects on wildlife habitats.

CONCLUSION

Earthquakes are natural disasters caused by the sudden release of energy in the Earth's crust. They occur primarily along tectonic plate boundaries, with the Pacific Ring of Fire being the most seismically active region due to its numerous plate interactions, including subduction zones, transform faults, and volcanic activity. The consequences of earthquakes can be severe, affecting both human life and infrastructure, causing economic loss, environmental damage, and psychological trauma. While the causes of earthquakes are diverse—ranging from tectonic plate movement to human activities—their regional distribution highlights the need for better preparedness, especially in high-risk areas like the Pacific Ring of Fire.

INDIA'S GREEN RECOVERY: PATHWAY TO SUSTAINABLE GROWTH

WHY IN THE NEWS?

The India State of Forest Report 2023 (ISFR 2023) was released by the Minister for Environment, Forest and Climate Change, Shri Bhupender Yadav, at the Forest Research Institute, Dehradun.



KEY FACTS ABOUT FOREST SURVEY OF INDIA (FSI)

Aspect	Details
Founded	June 1981
Headquarters	Dehradun, Uttarakhand
Parent Ministry	Ministry of Environment, Forest and Climate Change, Government of India
Primary Functions	Conduct forest surveys, studies, and research to monitor land and forest resources and provide data for national planning and conservation.
Predecessor	Preinvestment Survey of Forest Resources (PISFR), initiated in 1965 with sponsorship from FAO and UNDP.
Origin	Created based on the 1976 recommendation of the National Commission on Agriculture (NCA).
Biennial Reports	Publishes the "State of Forest Report" (SFR) every two years since 1987.
Forest Cover Monitoring	Uses remote sensing satellite data and GIS technology for digital interpretation.
Forest Fire Monitoring	Active since 2004, uses MODIS (Moderate-Resolution Imaging Spectrometer) and GIS technology.

INDIA STATE OF FOREST REPORT:

- Biennial Publication: Prepared by the Forest Survey of India (FSI), the ISFR has been published every two years since 1987.
- 18th Edition: The 2023 report marks the 18th release in the series.
- Comprehensive Assessment: It involves a detailed analysis of India's forest and tree resources using: 1) Remote Sensing Satellite Data. 2) Field-Based National Forest Inventory (NFI).

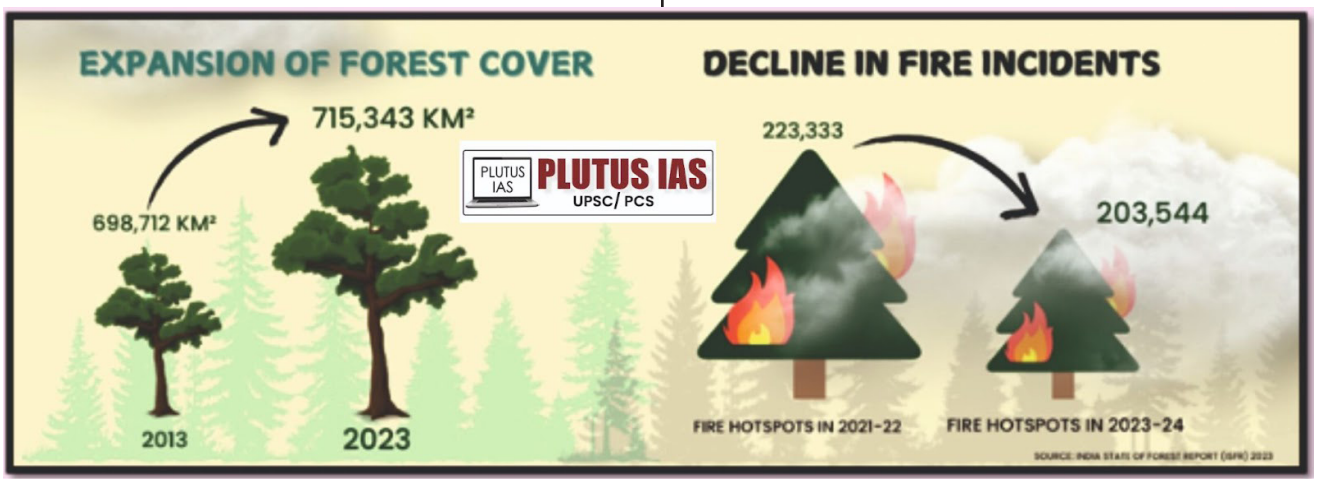
THE FOREST REPORT CONTAINS THE FOLLOWING:

- **Forest Cover**
- **Tree Cover**
- **Mangrove Cover**
- **Growing Stock**
- **Carbon Stock in India's Forests**
- **Instances of Forest Fire**
- **Agroforestry**

Training	Provides training to forester cadres of various Indian states.
Publications	– "The Indian State of Forest Reports" (biennial). – Area-specific "Inventory and Wood Consumption Studies".







MAJOR FINDINGS OF THE INDIA STATE OF FOREST REPORT 2023

Category	Details
Forest and Tree Cover	8,27,357 sq km (25.17% of geographical area), comprising 7,15,343 sq km (21.76%) as forest cover and 1,12,014 sq km (3.41%) as tree cover.
Increase since 2021 Assessment	Forest and tree cover increased by 1,445 sq km, including 156 sq km of forest cover and 1,289 sq km of tree cover.

Top States by Forest & Tree Cover Increase	1. Chhattisgarh (684 sq km) 2. Uttar Pradesh (559 sq km) 3. Odisha (559 sq km) 4. Rajasthan (394 sq km)
Top States by Forest Cover Increase	1. Mizoram (242 sq km) 2. Gujarat (180 sq km) 3. 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 (Area-wise)	1. Madhya Pradesh (77,073 sq km) 2. Arunachal Pradesh (65,882 sq km) 3. Chhattisgarh (55,812 sq km)
Highest Forest Cover (% of Area)	1. Lakshadweep (91.33%) 2. Mizoram (85.34%) 3. Andaman & Nicobar Islands (81.62%)
States with >33% Forest Cover	19 states/UTs; 8 of these (Mizoram, Lakshadweep, A&N Islands, Arunachal Pradesh, Nagaland, Meghalaya, Tripura, Manipur) have >75% forest cover.
Mangrove Cover	Total: 4,992 sq km.
Growing Stock	Total: 6,430 million cum – Inside Forest: 4,479 million cum – Outside Forest: 1,951 million cum Increase: 262 million cum (91 inside forest, 171 outside).
Bamboo Bearing Area	Total: 1,54,670 sq km Increase: 5,227 sq km since 2021.
Timber Production (Annual Potential)	91.51 million cum from trees outside forest.
Carbon Stock in Forests	Total: 7,285.5 million tonnes Increase: 81.5 million tonnes since 2021.

Carbon Sequestration (NDC Target)	India's carbon stock: 30.43 billion tonnes of CO2 equivalent Additional sink since 2005: 2.29 billion tonnes Target: 2.5–3.0 billion tonnes by 2030.
Utility of ISFR Data	Vital for policymakers, planners, State Forest Departments, research organizations, development agencies, academicians, and civil society for conservation and resource management.

KEY GOVERNMENT POLICIES AND INITIATIVES TO PROTECT AND EXPAND FOREST COVER:

Scheme/Policy	Details
National Mission for a Green India (GIM)	Launched in 2014, focuses on enhancing forest cover through protection, restoration, and expansion initiatives. Rs. 944.48 crore allocated to 17 States and 1 UT.
Nagar Van Yojana (NVY)	Established in 2020 to develop green spaces in urban and peri-urban areas. 546 projects approved with Rs. 431.77 crore allocated across 31 States/UTs.
School Nursery Yojana (SNY)	Aims to raise awareness about tree planting in schools. 743 projects sanctioned in 19 States/UTs with Rs. 4.80 crore allocated.
Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI)	Five-year initiative (2023-2028) to restore mangroves along India's coastline. Rs. 17.96 crore allocated for states like Andhra Pradesh, Gujarat, Odisha, and more.
National Plan for Conservation of Aquatic Ecosystems (NPCA)	Focuses on conservation and management of wetlands through a cost-sharing model between the Central and State Governments.
Ek Ped Maa Ke Naam	Launched in 2024 to encourage tree planting in honor of mothers, fostering a personal connection with nature.
Compensatory Afforestation Fund Management and Planning Authority (CAMPA)	Offsets forest loss by supporting afforestation projects under the Van Sanrakshan Evam Samvardhan Adhiniyam, 1980.
Twenty-Point Programme (Afforestation Targets)	Sets annual afforestation goals for States/UTs through Central and State schemes, NGO participation, and private sector efforts.
Awareness and Mass Plantation Drives	Promotes tree planting through events like Van Mahotsav, World Environment Day, and International Day of Forests.

Indian Forest Management Standard	Part of the National Working Plan Code – 2023, establishes criteria for sustainable forest management and certification for timber producers.
National Action Plan on Forest Fire (2018)	Provides measures to prevent forest fires, enhance resilience, and improve community capacity for fire prevention and control.
Joint Forest Management (JFM)	Involves community participation through Joint Forest Management Committees for better forest and wildlife protection, in line with the National Forest Policy, 1988.
Conservation of Mangroves and Coral Reefs	Supports coastal States/UTs for mangrove protection under the National Coastal Mission.
Legal Framework for Forest Protection	Enforced through laws like the Indian Forest Act, 1927; Wildlife Protection Act, 1972; and State-specific forest laws for sustainable forest and wildlife management.

THE SIGNIFICANCE OF THE INDIA STATE OF FOREST REPORT (ISFR):

1. **Comprehensive Forest Monitoring**: The Forest Reports provide crucial data on forest cover, tree cover, and various forest-related parameters, allowing for informed policy-making and resource management.
2. **Tracking Environmental Changes**: These reports help track changes in the forest ecosystem, such as deforestation, afforestation, and carbon stock variations, which are essential for assessing the impact of environmental policies.
3. **Policy Formulation and Planning**: The findings guide the formulation of national and state-level forest policies and the allocation of resources for conservation efforts, contributing to long-term environmental sustainability.
4. **Conservation Efforts**: By highlighting areas of concern, such as forest degradation, loss of biodiversity, or declining forest cover, these reports help prioritize conservation actions and ensure effective management of natural resources.
5. **Carbon Sequestration Monitoring**: The reports offer insight into the country's carbon stock, crucial for assessing the progress towards international climate commitments, including India's Nationally Determined Contributions (NDCs) under the Paris Agreement.
6. **Encouraging Public Awareness and Participation**: The publication of these reports increases public awareness about forest health and conservation, motivating local communities, NGOs, and other stakeholders to engage in sustainable forestry practices.
7. **Global Credibility**: As a recognized source of credible data, the ISFR enhances India's standing in international environmental assessments and climate negotiations.

CRITICISM OF THE FOREST REPORT FINDINGS:

1. **Definition of Forest**: Forest cover includes areas with a tree canopy ≥10%, regardless of ownership or legal status, incorporating orchards, bamboo, and palm. Experts criticize this broad definition, which may inflate data.
2. **Data Transparency**: Granular data, though prepared by the Forest Survey of India (FSI), is not made publicly available.
3. **Inflated Data Claims**: Experts like Prakriti Srivastava and Prerna Singh Bindra claim the inclusion of bamboo plantations, coconut groves, and orchards skews forest cover data.
4. **Unexplained Losses**: ISFR 2023 does not explain the reported loss of 1,488 sq km of unclassed forests between 2021 and 2023.
5. **Tree Cover Reclassification**: Out of 1,445.81 sq km added as forest area, 1,289 sq km is classified as tree cover, including roadside and immature trees. Bamboo clumps and smaller trees (5-10 cm in diameter) were included for the first time, revising previous data.

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6. **Carbon Stock Concerns**: Despite an estimated increase in carbon stock, experts argue this overlooks permanent forest losses due to infrastructure projects.
7. **Diversion of Forest Land**: Permanent conversions of forest land for projects like dams and roads are not removed from records, potentially inflating data.
8. **Hill District Forest Cover**: Forest cover in hill districts is only 40% of their geographical area, far below the National Forest Policy's target of 66.6%.
9. **Mangrove Cover Decline**: Mangrove cover decreased by 0.15%, while 'moderately dense' and 'open' forests declined by 1,043.23 sq km and 2,480.11 sq km, respectively.

WAY FORWARD:

1. **Digitization of Forest Records**: Implement the 2011 Supreme Court order for digitized forest maps, geo-referencing, and detailed documentation of diverted forest lands.
2. **Planting Trees**: Focus on planting trees along rivers, canals, roadsides, barren hills, and tank bunds, with species suited to local geographies.
3. **Public Awareness**: Educate citizens about the importance of forest conservation and sustainable practices.
4. **Technological Interventions**: Use remote sensing to monitor forest cover, detect vulnerable areas, and track forest fires effectively.
5. **Agroforestry Promotion**: Encourage the integration of trees into farming systems to improve forest cover and farmer income.
6. **Creating Forest Corridors**: Develop forest corridors to protect wildlife habitats and facilitate safe animal movement.
7. **Action Against Illegal Activities**: Strengthen enforcement to prevent illegal tree felling and forest clearing.
8. **Participation in Government Schemes**: Leverage schemes like GIM, MGNREGA, and CAMPA for afforestation and conservation efforts.

CONCLUSION

India is advancing steadily towards environmental sustainability, as highlighted in the 2023 India State of Forest Report. Growth in forest and tree cover, reduced fire incidents, and flourishing agroforestry underscore the nation's commitment to conservation. Through innovative policies and community involvement, India is protecting and restoring its natural resources, setting a strong foundation for a greener future.

INDIA'S ROLE IN GLOBAL GREENHOUSE GAS EMISSION REDUCTION EFFORTS

WHY IN THE NEWS?

India's greenhouse gas emissions fell by 7.93% in 2020, as reported in the country's fourth Biennial Update Report (BUR-4) to the UNFCCC. Despite this decline, total emissions rose by 98.34% since 1994. The report reveals a 36% drop in emission intensity from 2005 to 2020. India is on track to meet its 2030 climate goals, including reducing GDP emission intensity by 45% and achieving 50% of electric power capacity from non-fossil fuels. While emissions from energy, agriculture, and industry remain significant, India is striving to decouple economic growth from carbon emissions.



WHAT IS GREENHOUSE GAS?

A greenhouse gas (GHG) is a gas in the Earth's atmosphere that traps heat, contributing to the greenhouse effect, which keeps the planet warm enough to support life. These gases absorb infrared radiation (heat) emitted from the Earth's surface and re-radiate it back, preventing it from escaping into space. This natural process helps maintain temperatures that are conducive to life on Earth.

INDIA'S KEY ACHIEVEMENTS:

1. **Global Emissions Decline (2020):** 7.6% drop in global GHG emissions due to COVID-19. 2.4 billion tons reduction in CO2 emissions.
2. **India's Emission Intensity:** 36% decrease in GDP emission intensity (2005-2020). 7.93% reduction in national emissions in 2020.
3. **Global Carbon Intensity:** 40% reduction in carbon intensity (1990-2020), showing economic decoupling from emissions.
4. **Renewable Energy Growth:** Global renewable capacity surpassed 2,800 GW (29% of global electricity). Solar power capacity reached 1,000 GW by 2023.
5. **Methane Emissions:** Over 100 countries pledged to reduce methane emissions by 30% by 2030.
6. **Carbon Capture & Storage (CCS):** 30+ large-scale CCS projects capture 40 million tons of CO2 annually.
7. **International Climate Agreements:** The Paris Agreement (2015) aims to limit warming to 1.5°C. 130 countries committed to net-zero emissions by 2050.
8. **Ozone-Depleting Substances:** The Montreal Protocol reduced the use of harmful chemicals by 99%.

STEPS WERE TAKEN TO REDUCE GHG:

1. **Use Renewable Energy:** Switch to renewable energy sources like solar, wind, and hydroelectric power to reduce reliance on fossil fuels.
2. **Reduce Energy Use:** Lower energy consumption by using energy-efficient appliances, turning off lights, adjusting heating and cooling, and using less hot water.
3. **Reduce Transportation Emissions:** Walk, bike, use public transportation, or drive less. Opt for fuel-efficient or electric vehicles.
4. **Reduce Waste:** Recycle, reuse, repair, and minimize waste generation to lower emissions associated with landfills.
5. **Eat Less Meat:** Reducing meat consumption, especially red meat, can lower methane emissions from livestock and reduce your carbon footprint.
6. **Use Carbon Capture and Storage (CCS):** Implement CCS technology to capture and store CO2 emissions from power plants and industrial activities.
7. **Use Energy-Efficient Products:** Invest in energy-efficient products, such as LED bulbs, efficient appliances, and home insulation, to reduce energy consumption.
8. **Plant a Tree:** Planting trees helps absorb CO2 from the atmosphere, reducing overall GHG emissions.

STILL, A LONG WAY TO GO:

1. **Global Emissions Continue to Rise:** Despite efforts, global emissions have continued to rise, with countries like China and India seeing increased emissions due to rapid industrialization and growing energy demands.
2. **Insufficient Renewable Energy Transition:** Renewable energy adoption is growing, but fossil fuels still account for a large portion of global energy consumption. A faster transition to solar, wind, and other renewable sources is essential.
3. **Unprecedented Emissions from Transportation:** The transportation sector remains one of the largest sources of emissions, with many countries still heavily reliant on gasoline and diesel vehicles. Transitioning to electric vehicles (EVs) needs to accelerate.
4. **Deforestation and Land Use:** Deforestation continues at alarming rates, particularly in the Amazon and Southeast Asia. This reduces the planet's ability to absorb CO2 and disrupts ecosystems.
5. **Inequitable Climate Actions:** Many developing nations face challenges in adopting cleaner technologies due to financial and infrastructural limitations. Climate change impacts disproportionately affect these regions, often

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making it harder for them to invest in mitigation strategies.

6. **Carbon Capture Technology Limitations:** While carbon capture and storage (CCS) holds promise, it is still in the early stages and faces technical, economic, and environmental hurdles.

7. **Political and Economic Barriers:** Despite international agreements like the Paris Agreement, political will to implement policies for reducing emissions can be inconsistent.

WAY TO ACHIEVE NET ZERO IN 2070:

1. **Decarbonize Energy:** Shift to renewables (solar, wind, hydro). Invest in energy storage and nuclear power.

2. **Electrify Transport:** Promote electric vehicles (EVs) and build charging infrastructure. Electrify public transportation and use alternative fuels for aviation and shipping.

3. **Improve Energy Efficiency:** Enforce energy efficiency in buildings and industry. Promote circular economy practices.

4. **Carbon Capture & Removal:** Scale up CCS and direct air capture technologies. Invest in afforestation and soil carbon sequestration.

5. **Sustainable Agriculture:** Reduce methane emissions from farming. Promote plant-based diets and regenerative farming.

6. **Green Finance & Incentives:** Implement carbon pricing and invest in clean technologies.

7. **Global Collaboration:** Strengthen climate agreements and facilitate technology transfer to developing countries.

8. **Education & Public Awareness:** Increase climate education and promote sustainable lifestyles.

CONCLUSION

Achieving net-zero emissions by 2070 requires significant, concerted global efforts. Despite progress, such as India's 7.93% emissions reduction in 2020 and growth in renewable energy, global emissions continue to rise, driven by sectors like energy, transportation, and deforestation. To meet the net-zero goal, the world must rapidly decarbonize energy systems by shifting to renewable sources and nuclear power, electrify transportation through electric vehicles and public transit, and improve energy efficiency across buildings, industries, and agriculture. Additionally, scaling up carbon capture technologies, promoting sustainable agricultural practices, and fostering green finance and international collaboration are crucial. Achieving this ambitious target will demand immediate and sustained action across all sectors to create a sustainable, low-carbon future for generations to come.

INDIA'S GROUNDWATER REVIVAL: A STEP TOWARDS SUSTAINABLE WATER MANAGEMENT

WHY IN THE NEWS?

Groundwater has always been a critical resource, supporting life, agriculture, and communities worldwide. In recent news, a significant milestone has been reached in 2024, with groundwater recharge experiencing a remarkable increase of 15 billion cubic meters (BCM), while extraction has decreased by 3 BCM compared to 2017. This shift highlights positive progress in the sustainable management of groundwater, a resource often under pressure due to overuse and climate change. As global water demand continues to rise, understanding the balance between recharge and extraction is crucial. The increase in recharge signals an improvement in water conservation and management practices, reflecting a collective effort to safeguard this essential resource. However, challenges remain, including regional disparities, over-extraction, and the impact of droughts. This development has captured attention as it underscores the importance of sustainable water practices and the need to invest in technologies and policies that support the continued health of our groundwater supplies.

"We must adopt the mantra of 'Reduce, Reuse, Recharge, and Recycle' to secure the nation's water future"-Prime Minister Shri Narendra Modi

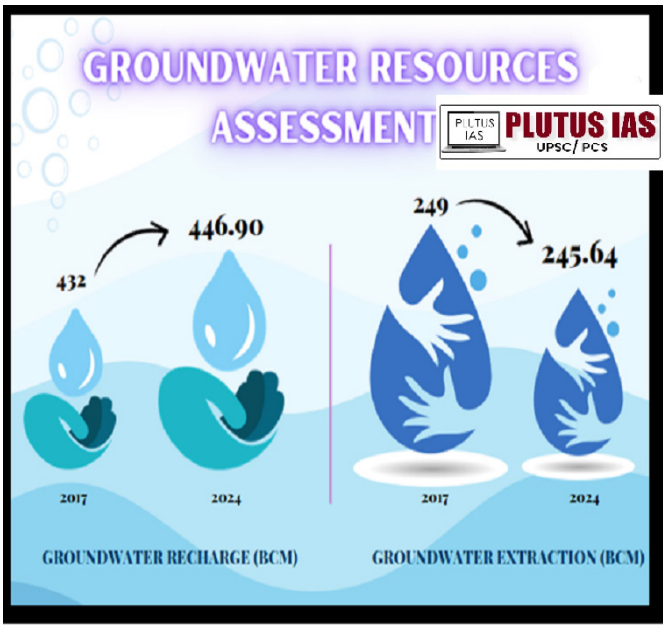


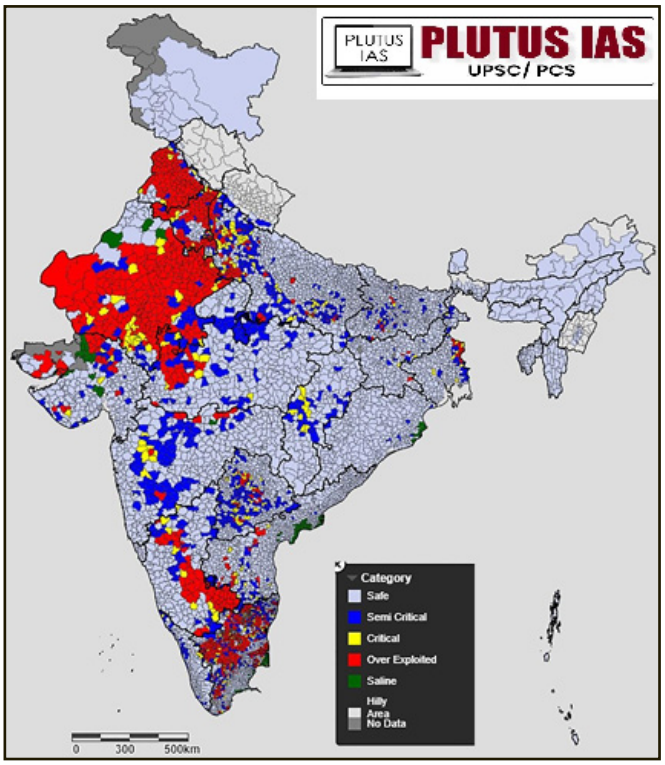
GROUNDWATER RESOURCES IN INDIA:

1. **Annual Groundwater Recharge:** India's total annual groundwater recharge is 437.60 billion cubic meters (BCM).
2. **Annual Groundwater Extraction:** The total annual groundwater extraction stands at 239.16 BCM.
3. **Extraction Stage:** The average stage of groundwater extraction in India is 60.08%, meaning 60% of the available groundwater is being used.
4. **Assessment Units:** India has 7,089 assessment units for groundwater. 1,006 units are over-exploited. 260 units are critical. 885 units are semi-critical. 4,780 units are safe.
5. **Groundwater Sources:** The replenishable groundwater resource is mainly replenished by rainfall and other sources like canal seepage, return flow from irrigation, and seepage from water bodies.
6. **Groundwater Consumers:** 87% of the total annual groundwater extraction is consumed by agriculture, making it the largest consumer of groundwater in India.

KEY FINDING OF THE REPORT:

1. **Increased Recharge:** Groundwater recharge has risen by 15 BCM, reaching 446.90 BCM in 2024.
2. **Reduced Extraction:** Groundwater extraction has decreased by 3 BCM, totaling 245.64 BCM in 2024.
3. **Improved Recharge from Tanks and WCS:** Recharge from tanks, ponds, and water control systems increased by 0.39 BCM compared to 2023 and by 11.36 BCM since 2017.
4. **Better Groundwater Conditions:** Safe category units increased from 62.6% in 2017 to 73.4% in 2024. Over-exploited units decreased from 17.24% to 11.13%.
5. **Improved Water Quality:** The report highlights that 81% of groundwater samples are suitable for irrigation.
6. **Positive Trends in Specific Regions:** 100% of groundwater samples from the northeastern states are rated "excellent" for irrigation.
7. **Rising Recharge Potential:** The continued increase in recharge from non-conventional sources like tanks, ponds, and WCS indicates sustainable water management practices.





GOVERNMENT INITIATIVE FOR GROUNDWATER SURVIVAL:

1. **Jal Shakti Abhiyan (JSA):** A nationwide campaign aimed at water conservation, rainwater harvesting, and efficient water use. The "Catch the Rain" phase, launched in 2024, is part of this ongoing effort to promote water management at the local level.
2. **Atal Bhujal Yojana (2020):** Targets water-stressed regions in 80 districts across 7 states, focusing on improving groundwater management through community participation, efficient water usage, and capacity building.
3. **Mission Amrit Sarovar (2022):** Aim to rejuvenate or create 75 Amrit Sarovars (large water bodies) in every district, providing significant support for water harvesting and conservation efforts.
4. **Pradhan Mantri Krishi Sinchai Yojana (PMKSY):** Expands irrigation coverage and improves water use efficiency, particularly in agricultural sectors, through repair, renovation of water bodies, and irrigation system modernization.
5. **National Aquifer Mapping (NAQUIM):** Provides comprehensive mapping of India's aquifers, helping to inform groundwater recharge and conservation strategies across over 25 lakh square kilometres.
6. **Master Plan for Artificial Recharge to Groundwater (2020):** Developed by the Central Groundwater Board (CGWB), this plan aims to create 1.42 crore rainwater harvesting and recharge structures to harness 185 BCM of rainfall annually.
7. **Artificial Recharge Projects:** Demonstration projects across various states show the feasibility of artificial recharge techniques, which can be replicated to restore groundwater levels.
8. **National Water Policy (2012):** Advocates for rainwater harvesting, water conservation, and augmentation of water availability through direct use of rainfall, providing a policy framework for sustainable water management.
9. **Watershed Development Component of PMKSY (WDC-PMKSY):** Focuses on soil conservation, rainwater harvesting, and livelihood development in rainfed and degraded lands, helping improve groundwater conditions in such areas.

MAJOR REASON FOR GROUNDWATER DEPLETION:

1. **Over-Extraction for Irrigation:** The primary cause of groundwater depletion is excessive use for irrigation, especially in agriculture-dependent regions. Crop production, especially water-intensive crops like paddy and sugarcane, leads to unsustainable groundwater extraction.
2. **Lack of Efficient Irrigation Systems:** Widespread reliance on outdated, inefficient irrigation methods, such as flood irrigation, results in the wastage of water. The absence of modern techniques like drip or sprinkler irrigation exacerbates the depletion.
3. **Urbanization and Population Growth:** Rapid urbanization and increasing population demand more water for domestic and industrial use, leading to increased groundwater extraction, often beyond sustainable levels.
4. **Industrial and Commercial Usage:** Industries, especially in water-intensive sectors like textiles, chemicals, and beverages, heavily rely on

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groundwater, further contributing to depletion. Many industrial areas do not have sufficient alternative water sources.

5. **Pollution and Contamination:** Groundwater contamination from agricultural runoff, industrial waste, and improper disposal of sewage has made many aquifers unsafe for use. In many cases, the quality of available groundwater deteriorates, forcing deeper extraction.

6. **Climate Change and Reduced Rainfall:** Climate change has altered rainfall patterns, leading to droughts and reduced recharge of aquifers. Reduced rainfall and irregular monsoons diminish the natural replenishment of groundwater resources.

7. **Poor Groundwater Management:** Inefficient groundwater management practices, lack of regulation, and over-reliance on extraction without adequate recharge mechanisms have led to the depletion of aquifers. Insufficient awareness and poor enforcement of water conservation policies also play a role.

WAY TO REDUCE GROUNDWATER DEPLETION IN INDIA:

1. **Efficient Irrigation:** Promote drip and sprinkler irrigation to minimize water wastage and optimize water use.

2. **Rainwater Harvesting:** Mandate and incentivize rainwater harvesting to recharge groundwater aquifers.

3. **Water-Efficient Crops:** Encourage drought-resistant and less water-intensive crops, reducing reliance on groundwater.

4. **Groundwater Recharge:** Implement artificial recharge techniques like check dams and infiltration ponds to replenish aquifers.

5. **Regulation and Monitoring:** Enforce stricter regulations on groundwater extraction and establish real-time monitoring systems.

6. **Public Awareness:** Educate communities on water conservation practices and sustainable usage.

7. **Wastewater Recycling:** Promote wastewater treatment and reuse, reducing dependency on groundwater for non-potable purposes.

CONCLUSION

Groundwater is vital for agriculture, industry, and daily life, but its depletion due to over-extraction and climate change remains a significant concern. Positive trends in recharge and reduced extraction in 2024 show progress, thanks to efforts like the Jal Shakti Abhiyan and Atal Bhujal Yojana. However, challenges persist, especially in over-exploited regions. To ensure sustainable groundwater use, India must focus on efficient irrigation, rainwater harvesting, wastewater recycling, and stricter regulations. Public awareness and adoption of water-efficient practices are crucial to securing groundwater for future generations.

INDIA'S PROGRESS TOWARDS CLIMATE RESILIENCE

WHY IN THE NEWS?

Climate change and rising temperatures pose serious threats to life on Earth, prompting the United Nations Framework Convention on Climate Change (UNFCCC) to require countries to submit Nationally Determined Contributions (NDCs) under the Paris Agreement to reduce greenhouse gas (GHG) emissions. In response, India pledged to achieve net-zero emissions by 2070 at the 26th Conference of the Parties (COP 26) in 2021. India's 4th Biennial Update Report (BUR-4) highlighted a 7.93% reduction in GHG emissions in 2020 compared to 2019. This demonstrates India's commitment to a sustainable, climate-resilient future.

India is the land of Mahatma Gandhi, whose vision for sustainable development inspires us greatly. We have shown what it is to realise key principles like Green Future and Net Zero." ~ Prime Minister Shri Narendra Modi



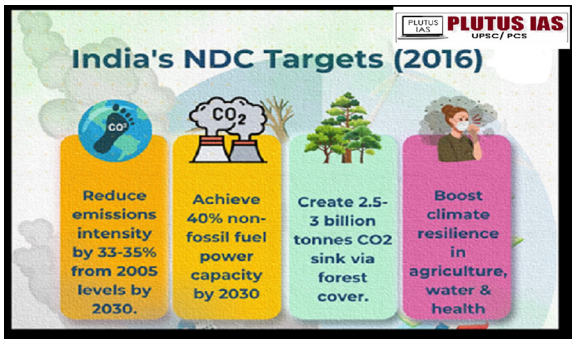
INDIA'S CLIMATE ACTIONS UNDER UNFCCC:

1. NDC Targets(Nationally Determined Contributions):
Emissions Intensity: Target: Reduce emissions intensity of GDP by 45% by 2030, compared to 2005 levels.

2. Non-Fossil Fuel Energy:
Target: Increase the share of non-fossil fuel-based energy in the total installed electric power capacity to 50% by 2030.

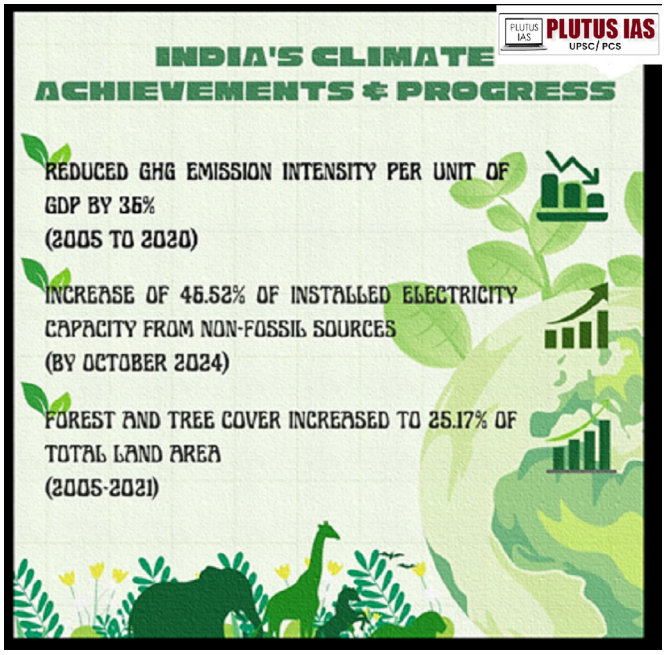
3. Net-Zero Emissions:
Target: Achieve net-zero emissions by 2070, marking a long-term goal in line with the global climate agenda.

4. Panchamrit Targets:
500 GW Non-Fossil Energy Capacity:
Target: Reach 500 GW of non-fossil fuel-based energy capacity by 2030.
50% Energy from Renewable Sources:
Target: Ensure that 50% of India's energy needs come from renewable sources by 2030.



KEY ACHIEVEMENT IN CLIMATE:

1. **Historical GHG Emissions:** India's cumulative share of global GHG emissions (1850-2019) is 4%, despite having 17% of the world's population.
2. **Low Energy Consumption:** In 2019, India's annual primary energy consumption per capita was 28.7 GJ, much lower than both developed and developing countries.
3. **Low-Carbon Pathways:** India is committed to low-carbon development while ensuring energy access, security, and sustainable economic growth.
4. **Climate Vulnerability:** India's diverse geography makes it highly vulnerable to climate change impacts like heatwaves, floods, and droughts.
5. **Adaptation Strategies:** Essential for safeguarding development, focusing on resilient infrastructure, water management, and sustainable agriculture.



CLIMATE ACTIONS INITIATIVES FOR CARBON NEUTRALITY:

1. Forest Land Diversion & Mitigation Measures

Forest Fragmentation Consideration: Forest fragmentation is addressed during forest land diversion approvals for non-forestry purposes under Van Adhiniyam, 1980.

Compensatory Afforestation: Mandatory afforestation for non-forestry land diversion, including soil and moisture conservation and eco-restoration.

"Ek Ped Maa Ke Naam" tree plantation Campaign: Nationwide tree plantation campaign launched on World Environment Day 2024.

Green Credit Program: Launched in 2023, the program focuses on tree plantation on identified degraded forest land parcels to generate green credits.

National Afforestation Programme (NAP): Pan-India afforestation in identified degraded forest areas with people's participation and decentralized forest governance.

2. Urban Climate Adaptation & Low-Carbon Development

Mainstreaming Adaptation in Urban Planning: India's LT-LEDS emphasizes integrating adaptation measures and enhancing energy and resource efficiency within urban planning policies and guidelines as key components of a low-carbon development pathway.

Sustainable Urban Planning Policies: The relevant policies and initiatives include Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, Town and Country Planning Act, Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Pradhan Mantri Awaas Yojana (PMAY) and Swachh Bharat Mission (SBM).

3. Air Pollution Control & Clean Air Initiatives

National Clean Air Programme (NCAP): Aimed at improving air quality with city-specific action plans for 131 cities.

Funding & Implementation: Mobilized through various schemes such as SBM (Urban), AMRUT, Sustainable Alternative towards Affordable Transportation (SATAT), Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME-II)and Nagar Van Yojna.

Air Pollution Abatement Measures: Initiatives include cleaner fuels (CNG/LPG), ethanol blending, BS-VI fuel norms, and air quality management.

4. Coastal Ecosystem Conservation & Resilience

Mangrove & Coral Reef Conservation: Financial assistance provided to coastal states/UTs for enhancing climate resilience, including mangrove conservation.

Integrated Coastal Zone Management Plans (ICZMP):

Plans for Coastal States: Prepared for Gujarat, Odisha, and West Bengal for coastal ecosystem protection.

Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) Program: Mangrove restoration/reforestation program launched in 2023, covering approximately 540 km² across 9 coastal states and 4 UTs.₹ 12.55 crores has been released to the states of Gujarat, West Bengal, Kerala and UT of Puducherry for the restoration of 3,046 ha. of mangroves in FY 2024-25.

5. Regulatory Measures for Climate Resilience

The Coastal Regulation Zone (CRZ) Notifications (2011 & 2019), issued under the Environment Protection Act, 1986, Wildlife Protection Act, 1972, Indian Forest Act, 1927, and Biological Diversity Act, 2002 for enhancing climate resilience. The 2019 CRZ notification specifically targets the management of mangroves, coral reefs, and other critical ecosystems.

CHALLENGES:

1. **High Dependence on Coal:** India's reliance on coal hampers emission reduction efforts; transitioning to cleaner energy requires significant investments and infrastructure changes.
2. **Financial Constraints:** Limited financial resources hinder large-scale renewable energy projects, climate adaptation, and advanced technologies like carbon capture and green hydrogen.
3. **Energy Access and Security:** Balancing energy access for rural populations with low-carbon transitions is challenging while ensuring energy security during the shift away from fossil fuels.
4. **Vulnerability to Climate Impacts:** India faces significant climate risks (heatwaves, floods,

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droughts), requiring strong adaptation measures, especially in vulnerable regions.

5. **Infrastructure and Technology Gaps:** The expansion of renewable energy requires modern grid infrastructure, energy storage, and overcoming integration challenges in renewable sources.
6. **Urbanization and Pollution:** Rapid urbanization strains air quality and waste management; sustainable urban planning and pollution control remain ongoing challenges.
7. **Policy and Implementation Gaps:** Inconsistent implementation of climate policies, particularly in rural and vulnerable areas, affects progress towards climate resilience.
8. **Land Use and Deforestation:** Urban sprawl and deforestation challenge land-use management; afforestation efforts are critical for enhancing resilience.
9. **International Financing and Technology Transfer:** India needs continued international financial and technological support to meet its climate targets, relying on commitments from developed nations.

WAY FORWARD:

1. **Low Carbon Development of Electricity Systems**: Low carbon development of electricity systems consistent with development
2. **Integrated, Efficient, Inclusive, Low-Carbon Transport System**: Develop an integrated, efficient, inclusive, low-carbon transport system
3. **Promoting Adaptation in Urban Design & Sustainable Urbanization**: Promoting adaptation in urban design, energy & material efficiency in buildings& sustainable urbanization
4. **Economy-Wide Decoupling of Growth from Emissions:** Promoting economy-wide decoupling of growth from emissions and development of an efficient, innovative, low-emission industrial system
5. **CO2 Removal & Engineering Solutions**: Investing in carbon dioxide removal (CDR) technologies and engineering solutions such as carbon capture and storage (CCS) to reduce atmospheric CO2 levels.
6. **Enhancing Forest & Vegetation Cover:** Enhancing Forest and Vegetation cover consistent with socio-economic and ecological considerations
7. **Economic and Financial Aspects of Low-Carbon Development**: Economic and financial aspects of low-carbon development and Long-Term Transition to net zero by 2070.

CONCLUSION

India is advancing towards a carbon-neutral future with a focus on sustainable development and innovative solutions. Committed to reducing greenhouse gas emissions, India is implementing key initiatives like its Long-Term Low Emission Development Strategy and the Miyawaki tree planting at Mahakumbh 2025. These efforts ensure balanced growth and environmental responsibility, paving the way for a climate-resilient future.

Prelims Question:

1. Which region is known as the most seismically active due to frequent tectonic plate movements and subduction zones?

A. Himalayan Region

B. Mid-Atlantic Ridge

C. Pacific Ring of Fire

D. New Madrid Seismic Zone

2. Consider the following:

1. Forest Cover
2. Tree Cover
3. Mangrove Cover
4. Growing Stock
5. Carbon Stock in India's Forests
6. Instances of Forest Fire
7. Bamboo Cover

How many of the above are Assessed in India's State of Forest Report 2023?

A. Only four

B. Only five

C. Only Six

D. All Seven

3. Which of the following is true regarding India's greenhouse gas emissions and climate goals?

1. India reduced its greenhouse gas emissions by 7.93% in 2020.
2. India aims to achieve net-zero emissions by 2050.
3. India's GDP emission intensity decreased by 36% between 2005 and 2020.

Select the correct answer using the code below:

A. 1 and 3 only

B. 2 and 3 only

C. 1, 2, and 3

D. 1 only

4. Which of the following statements about groundwater resources in India is/are correct?

1. The total annual groundwater recharge in India is 437.60 BCM.
2. Over-exploited groundwater units have increased in recent years.
3. The increase in groundwater recharge in 2024 is 15 BCM compared to 2017.
4. Groundwater extraction for agriculture accounts for 87% of the total annual extraction in India.

Choose the correct option given below:

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

5. Consider the following statements about India's climate actions:

1. India's target is to achieve net-zero emissions by 2050.
2. India has committed to reducing emissions intensity of GDP by 45% by 2030.
3. The Panchamrit targets include reaching 500 GW of non-fossil fuel-based energy capacity by 2030.

Which of the above statements is correct?

A 1 and 2 only

B 2 and 3 only

C 1 and 3 onl

D 2 only

Answer

1. C	2. D	3. A	4. B	5. B

Mains Question:

1. Discuss the primary causes and consequences of earthquakes, with a special focus on why they are more prevalent in the Pacific Ring of Fire.

(250 words, 15 marks)

2. In light of the challenges identified in the India State of Forest Report 2023, critically analyze the measures needed to address these challenges. How can India ensure sustainable forest management while balancing developmental and conservation goals?

(Answer in 250 words)

3. India's greenhouse gas emissions have shown a reduction of 7.93% in 2020, but the nation still faces challenges in achieving its 2030 climate goals. Discuss the steps India can take to achieve net-zero emissions by 2070 and the role of global collaboration in this process.

(250 words, 15 marks)

4. Discuss the key reasons behind groundwater depletion in India and suggest measures to ensure sustainable groundwater management.

(250 words, 15 marks)

5. What are the key adaptation strategies India should adopt to tackle the impacts of climate change? How can India balance its development goals with environmental sustainability?

(250 words, 15 marks)

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UNLOCKING THE FUTURE OF POWER: DISTRIBUTED ENERGY TECHNOLOGIES

WHY IN THE NEWS?

Distributed Energy Resources (DERs) are offering exciting new opportunities for power systems but also present significant challenges if grids aren't properly prepared. While many regions are still exploring how DERs fit into the broader energy landscape—understanding their impact on grid stability, reliability, and cost reduction—other areas have already built valuable experience. These regions have demonstrated that, when supported by the right technologies, policies, and incentives, DERs can provide crucial services to enhance grid performance and drive down energy costs.

WHAT IS DISTRIBUTED TECHNOLOGY?

Distributed generation refers to a variety of technologies that generate electricity at or near where it will be used, such as solar panels and combined heat and power. Distributed generation may serve a single structure, such as a home or business, or it may be part of a microgrid (a smaller grid that is also tied into the larger electricity delivery system), such as at a major industrial facility, a military base, or a large college campus. When connected to the electric utility's lower voltage distribution lines, distributed generation can help support the delivery of clean, reliable power to additional customers and reduce electricity losses along transmission and distribution lines.

DISTRIBUTED TECHNOLOGY APPLIED IN THE RESIDENTIAL SECTOR:

1. **Solar Photovoltaic (PV) Panels:** These panels convert sunlight directly into electricity, offering a sustainable and renewable source of energy for homes.
2. **Small Wind Turbines:** These turbines harness wind energy to generate electricity on-site, providing an alternative renewable energy source for residential use.
3. **Natural-Gas-Fired Fuel Cells:** These fuel cells produce electricity through a chemical reaction between hydrogen and oxygen, with natural gas often serving as the fuel, offering a reliable and efficient energy source for homes.
4. **Emergency Backup Generators:** Typically powered by gasoline or diesel, these generators provide backup power during grid outages, ensuring that essential home systems remain functional in emergencies.

Distributed technology applied in the commercial and industrial sectors:

1. **Combined Heat and Power (CHP) Systems:** These systems generate both electricity and useful heat from a single energy source, maximizing efficiency by utilizing waste heat that would otherwise be lost.
2. **Solar Photovoltaic (PV) Panels:** Like in the residential sector, solar panels are used by businesses and industrial facilities to harness sunlight and convert it into electricity, reducing reliance on the grid and lowering energy costs.
3. **Wind Power:** On-site wind turbines can generate electricity for commercial and industrial operations, especially in areas with consistent wind resources, reducing energy expenses and carbon footprints.

4. **Hydropower:** Small-scale hydropower systems, such as micro-hydropower plants, can be installed in regions with available water resources to produce renewable electricity.

5. **Biomass Combustion or Cofiring:** Biomass, such as wood chips or agricultural waste, can be burned to generate electricity and heat. Cofiring with coal in existing power plants is another method to reduce emissions and diversify fuel sources.

6. **Municipal Solid Waste Incineration:** This technology involves burning waste materials to generate electricity and reduce the volume of waste while also producing heat for industrial processes or district heating systems.

7. **Fuel Cells Fired by Natural Gas or Biomass:** Fuel cells use electrochemical reactions to produce electricity, with natural gas or biomass as the fuel source, offering a cleaner alternative to conventional combustion-based power generation.

8. **Reciprocating Combustion Engines:** Often used as backup generators, these engines can run on various fuels, including diesel, natural gas, or biomass, to provide reliable electricity during peak demand or in the event of grid outages.

MECHANISM OF DISTRIBUTED TECHNOLOGY:

1. Energy Generation:

- **Solar Panels:** Convert sunlight into electricity using semiconductor materials. When sunlight hits the panels, it creates an electric current.
- **Wind Turbines:** Capture wind energy through spinning blades, which turn a generator to produce electricity.
- **Fuel Cells:** Generate power through a chemical reaction, typically using hydrogen and oxygen, producing electricity, heat, and water.
- **Biomass Combustion:** Burns organic material (like wood or waste) to produce heat, which can drive a turbine to generate electricity.

2. Energy Storage:

Batteries: Store excess energy from sources like solar or wind, and release it when needed, especially during periods of low generation or high demand.

Thermal Storage: Stores excess heat for later use, improving efficiency in systems like combined heat and power (CHP).

3. Energy Management:

Inverters & Smart Grids: Convert energy and manage its flow to integrate distributed systems with the grid. Inverters turn DC energy (from solar, for example) into usable AC power. Smart grids help balance energy supply and demand efficiently.

4. Backup Power:

Generators: Provide emergency power when the grid goes down. They are usually powered by natural gas or diesel.

5. Grid Integration:

Microgrids: Localized energy networks that can disconnect from the main grid and operate independently, ensuring continuous power during outages.

CONCERNS RELATED TO DISTRIBUTED TECHNOLOGY:

1. **Grid Integration**: Connecting decentralized systems like solar and wind to the grid can be complex and requires advanced infrastructure.

2. **Grid Stability**: Intermittent energy sources may cause power fluctuations, affecting grid reliability without proper storage or backup systems.

3. **High Costs**: Initial setup and maintenance of distributed systems can be expensive, limiting access for some households or businesses.

4. **Regulatory Uncertainty**: Lack of clear policies and regulations can hinder adoption and investment in distributed energy.

5. **Maintenance Requirements**: Regular upkeep of technologies like wind turbines or biomass systems can be costly and specialized.

6. **Cybersecurity Risks**: Increased connectivity of distributed systems raises the risk of cyberattacks and data breaches.

7. **Environmental Impact**: Some systems, like biomass, may have negative environmental effects if not properly managed.

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WAY FORWARD:

1. **Improve Grid Integration:** Developing advanced grid infrastructure, such as smart grids and improved inverters, will enable better integration of DERs, ensuring smooth communication and efficient energy flow between decentralized systems and the main grid.
2. **Enhance Storage Solutions:** Expanding energy storage technologies, like advanced batteries, will help mitigate the intermittent nature of renewable sources like solar and wind, ensuring a more reliable energy supply.
3. **Supportive Policies and Regulations:** Governments need to create clear, consistent policies that encourage investment in DERs, provide incentives for clean energy adoption, and address regulatory gaps to support the growth of distributed systems.
4. **Lower Costs through Innovation:** Continued research and technological advancements will help lower the cost of distributed energy systems, making them more accessible to households, businesses, and industries alike.
5. **Cybersecurity Measures:** As DERs become more connected, it's essential to invest in robust cybersecurity frameworks to protect distributed systems from potential vulnerabilities and threats.
6. **Focus on Sustainability:** Ensuring that technologies like biomass and waste-to-energy are managed sustainably will help mitigate environmental impacts while maintaining the benefits of distributed generation.
7. **Promote Energy Equity:** Efforts must be made to ensure that all communities, particularly low-income and rural areas, have access to affordable and reliable distributed energy solutions.

CONCLUSION

Distributed energy technologies hold great promise for transforming the way we generate, store, and consume electricity, offering cleaner, more efficient, and reliable solutions for residential, commercial, and industrial sectors. However, to unlock their full potential, addressing challenges related to grid integration, cost, regulation, and sustainability is essential. By investing in innovative solutions, supporting clear policies, and ensuring equitable access, we can build a more resilient and sustainable energy future powered by DERs.

INDIA TARGETS SPACE DOCKING MILESTONE WITH ISRO'S SPADEX MISSION

WHY IN THE NEWS?

The Indian Space Research Organisation (ISRO) is set to achieve a groundbreaking milestone with its SpaDeX mission, aiming to dock or merge two satellites in space. This rare and challenging feat has only been accomplished by a few countries, and India is now preparing to join their ranks. The mission will utilize the indigenous "Bharatiya Docking System," a significant technological advancement for the country. Union Minister Dr Jitendra Singh highlighted the importance of SpaDeX in showcasing India's capabilities in space technology, which will also be crucial for future missions, including the Indian space station and Gaganyaan. The successful docking of two satellites will solidify India's growing role in global space exploration.



INDIAN AND SPADEX MISSION:

The SpaDeX Mission (Space Docking Experiment), led by ISRO, aims to demonstrate in-space docking technology, a crucial capability for future space missions. This mission involves two small spacecraft, SDX01 (Chaser) and SDX02 (Target), each weighing 220 kg, designed to dock and undock autonomously in low Earth orbit (LEO) at an altitude of 470 km.

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Category	Details
Key Features	
Indigenous Docking System	Both spacecraft use the Bharatiya Docking System (BDS), allowing either spacecraft to act as the Chaser or Target.
Autonomous Operations	Advanced algorithms manage docking and rendezvous processes autonomously, aided by AI for real-time decision-making.
Power Transfer	Demonstrates the ability to transfer electrical power between docked spacecraft, which is crucial for satellite servicing and space robotics.
Navigation and Control	Uses a GNSS-based positioning system for precise control and AOCS to maintain stability during critical operations.
Significance	
Global Leadership	Positions India among a select group of countries mastering docking technology, enhancing ISRO's role in global space exploration.
Future Missions	Essential for future projects like the Bharatiya Antriksh Station, human spaceflight missions (Gaganyaan), and lunar or interplanetary missions.
Satellite Servicing	Key for extending satellite lifespans through refuelling and repair in orbit.
Launch Details	
Launch Vehicle	PSLV-C60 (Polar Satellite Launch Vehicle) is a reliable and versatile rocket.
Launch Site	Satish Dhawan Space Centre (SDSC) in Sriharikota, India.
Launch Date	December 30, 2024.

WHAT IS SPACE DOCKING?

Space docking is the process by which two spacecraft or modules connect or attach to each other while in space. This technology allows spacecraft to join together in orbit to achieve specific objectives. The docking process typically involves one spacecraft (the Chaser) approaching and aligning itself with another spacecraft or station (the Target) to connect physically.

1. **Assembly of Space Stations:** Docking is key to building large structures in space, such as space stations, where multiple modules are launched separately and then docked together in orbit.
2. **Satellite Servicing:** Docking enables spacecraft to connect with satellites for refuelling, repairs, or upgrades in orbit, extending the satellite's operational life without needing to launch replacements.
3. **Crew Transfer:** For human spaceflight missions, docking allows astronauts to transfer between spacecraft or between a spacecraft and a space station.
4. **Resource Sharing:** Docked spacecraft can transfer supplies, power, and data, supporting long-term missions like deep-space exploration.

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HOW IS SPACE DOCKING CARRIED OUT

Space docking is a complex process where two spacecraft connect in orbit, either automatically or manually, for tasks like crew transfer or resupply.

1. **Rendezvous:** One spacecraft (the chaser) adjusts its orbit to approach the target spacecraft, matching speed and position for alignment.
2. **Approach:** The chaser fine-tunes its position to get close to the target (usually within 10-50 meters), using onboard sensors for navigation.
3. **Docking:**
    - **Automated Docking:** Systems like the Kurs or IDSS guide the spacecraft into the docking port using sensors, lasers, and cameras.
    - **Manual Docking:** Crew manually controls the approach using thrusters and cameras, a technique used in early missions.
4. **Latching:** The docking mechanisms engage, securing the spacecraft together. Pressure equalization and sealing ensure safety.
5. **Post-Docking:** Systems are checked for secure connections and communication links. Crew or cargo may transfer between spacecraft.
6. **Undocking:** If needed, spacecraft disengage using thrusters and safely separate.

SIGNIFICANCE OF THE SPACE DOCKING:

1. **Crew Transfer**: Docking allows astronauts to move between spacecraft, such as from the SpaceX Dragon or Soyuz to the International Space Station (ISS), supporting long-duration missions.
2. **Resupply and Maintenance:** Docking facilitates the delivery of cargo, scientific equipment, and fuel to space stations, such as the ISS, enabling ongoing research and station upkeep.
3. **International Collaboration:** It enables countries to work together in space, as seen in the Apollo-Soyuz Test Project and the ISS, where spacecraft from different nations dock for joint missions.
4. **Scientific Research:** Docking enables the transfer of crew and equipment to space labs, allowing for continuous scientific experiments and space station operations.
5. **Support for Deep-Space Exploration:** For future missions to the Moon, Mars, or beyond, docking will be critical for assembling spacecraft, transferring supplies and crew, and ensuring mission success.
6. **Automated Systems and Safety:** With automated docking systems, space missions become more efficient, reducing the need for manual labour and improving safety during docking operations.

CHALLENGES IN SPACE DOCKING:

1. **Precision and Navigation:** Docking requires extremely precise maneuvering. Even slight misalignments can cause failure, so accurate navigation, guidance, and control systems are essential to ensure safe docking.
2. **Relative Motion:** Spacecraft must approach each other in orbit while moving at high speeds (up to 28,000 km/h). Small errors in speed or trajectory can lead to a collision or missed docking. Automated docking systems rely on advanced sensors (such as cameras, radar, and lasers) to guide spa
3. **Automation and Sensors:**cecraft into place. These sensors must function flawlessly in the absence of atmospheric reference points and handle potential interference or failures.
4. **Mechanical Compatibility:** Different spacecraft may use different docking mechanisms. Ensuring compatibility between spacecraft, such as between the Russian Soyuz and American spacecraft, requires custom adapters or universal standards like the International Docking System Standard (IDSS).
5. **Pressure Sealing:** After docking, ensuring airtight seals is critical for crew safety. Any failure in the docking ring or seals can lead to leaks, compromising the pressure inside the spacecraft.

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6. **Environmental Hazards:** Spacecraft must account for various space hazards, including micrometeoroids, space debris, and radiation. These factors can pose risks to the docking process and equipment integrity.

7. **Crew Coordination:** In manual docking, astronauts must rely on visual cues and instruments to safely guide the spacecraft into position, requiring high skill and coordination, especially in challenging conditions like low-light or zero gravity.

WAYS TO CARRIED OUT SPACE DOCKING IN A PROPER MANNER:

1. **Precise Rendezvous:** Accurate calculations and continuous monitoring of position and speed ensure a safe approach.
2. **Advanced Navigation:** Automated docking systems use sensors (radar, lidar, cameras) to guide spacecraft, with manual control as a backup.
3. **Docking Compatibility:** Standardized systems like IDSS ensure spacecraft from different nations can dock seamlessly.
4. **Sensor Integration:** High-precision sensors enable accurate final alignment for safe docking, accounting for space environment factors.
5. **Controlled Approach:** Spacecraft approach at low speeds with finely tuned thrusters to prevent damage.
6. **Pressure Integrity:** Secure, airtight seals are ensured using locking mechanisms and leak testing post-docking.
7. **Communication:** Continuous communication between spacecraft and crew ensures coordinated manoeuvres.

CONCLUSION

The SpaDeX mission marks a major technological achievement for India. By mastering space docking, ISRO will not only enhance its capability to carry out satellite servicing and interplanetary exploration but also strengthen its role in global space missions. The advancements demonstrated in this mission will be foundational for India's future space exploration endeavours, ensuring long-term sustainability and growth in space activities.

GOOGLE WILLOW QUANTUM CHIP:

WHY IN THE NEWS?

Google's announcement about the 'Willow' quantum computing chip is significant because it marks a major leap forward in the field of quantum technology. The chip's ability to solve a complex mathematical problem in just five minutes, which would take classical computers longer than the age of the universe, demonstrates the extraordinary potential of quantum computers to tackle problems that are beyond the reach of traditional computing. This achievement highlights the ongoing race to develop quantum computers that can outperform classical machines, potentially revolutionizing fields such as cryptography, material science, artificial intelligence, and more. By making such a breakthrough, Google not only showcases its leadership in the quantum computing space but also sets a new milestone in the quest for practical quantum computing.

WHAT IS GOOGLE WILLOW QUANTUM CHIP?

Willow is a next-generation quantum computing chip developed by Google. It is designed to solve complex computational problems much faster than classical computers and even the most powerful supercomputers. Willow represents a significant advancement in quantum computing due to its innovative features, including an improved number of qubits (105 qubits) and enhanced error correction mechanisms.

KEY FEATURES OF WILLOW:

1. **105 Qubits:** Unlike classical bits, which can be either 0 or 1, qubits can exist in multiple states at once (thanks to superposition), enabling quantum computers like Willow to perform multiple calculations simultaneously.

2. **Error Correction:** One of Willow's standout innovations is its ability to reduce error rates as the number of qubits increases. This is a significant breakthrough in making quantum computing more reliable and practical for real-world applications.

3. **Superconducting Qubits:** Willow uses superconducting transmon qubits, which are electrical circuits that behave like quantum particles. These circuits are kept at extremely low temperatures (just above absolute zero) to reduce interference from the environment, allowing for more accurate calculations.

4. **Real-Time Error Correction:** Willow incorporates real-time error correction, ensuring that as quantum computations become more complex, they can still be carried out reliably

MECHANICS OF WILLOW:

1. **Superposition:** Willow's qubits can exist in multiple states simultaneously, unlike classical bits, enabling the chip to perform many calculations at once, vastly boosting computational power.
2. **Entanglement:** Quantum entanglement links qubits, so the state of one affects the other, even at a distance. This enables highly efficient information transfer and computation.
3. **Superconducting Transmon Qubits:** Willow uses superconducting transmon qubits that operate at ultra-low temperatures, minimizing disturbances and errors caused by heat or electromagnetic interference.
4. **Real-Time Error Correction:** To address qubit errors from environmental factors, Willow incorporates real-time error correction, ensuring stable and reliable computations.
5. **Enhanced Qubit Connectivity:** The chip's advanced qubit connectivity ensures efficient interaction between qubits, crucial for scaling the system and maintaining performance during complex calculations.

APPLICATION:

1. **Cryptography:** Willow could break traditional encryption by quickly factoring in large numbers, enabling quantum-based encryption for more secure data protection.

2. **Drug Discovery & Healthcare:** By simulating molecular structures accurately, Willow can accelerate drug discovery and predict molecule behaviour more precisely than classical methods.

3. **Material Science:** Willow can design new materials with specific properties, enabling complex simulations for superconductors and nanomaterials that were previously too computationally expensive.

4. **Artificial Intelligence (AI):** Quantum algorithms on Willow can optimize AI models, improve data analysis, and develop exponentially more efficient algorithms for machine learning.

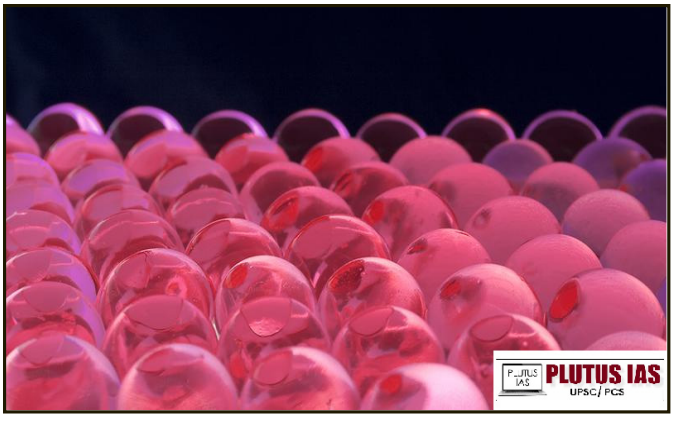
5. **Optimization Problems:** Willow can solve optimization challenges in sectors like logistics, finance, and manufacturing, processing vast data to improve decision-making and efficiency.

6. **Climate Modeling:** Quantum computing can enhance climate modelling and weather predictions, helping design solutions for sustainability and energy efficiency.

HYDROGEL: NEW RAY OF HOPE

WHY IN THE NEWS?

Researchers from IIT-Guwahati and the Bose Institute, Kolkata, have developed a groundbreaking injectable hydrogel for targeted cancer treatment. This hydrogel acts as a stable reservoir for anti-cancer drugs, releasing them in a controlled manner, thereby sparing healthy cells and reducing harmful side effects. The research, particularly promising for breast cancer therapy, has been published in Materials Horizons, a journal of the Royal Society of Chemistry. This advancement offers a potential alternative to traditional treatments like chemotherapy, which often affects both cancerous and healthy cells, leading to severe side effects.



WHAT IS HYDROGEL?

A hydrogel is a three-dimensional network of hydrophilic (water-attracting) polymers that can hold large amounts of water within their structure. These materials are biocompatible and biodegradable, making them suitable for medical applications, including drug delivery. Due to their ability to maintain moisture and their flexibility, hydrogels are widely used in wound dressings, contact lenses, and drug delivery systems.

HYDROGEL FOR CANCER:

The injectable hydrogel developed by IIT-Guwahati and Bose Institute is designed specifically for localized cancer treatment. It acts as a stable reservoir for anti-cancer drugs and releases them in a controlled manner at the tumour site. This precision delivery system reduces the impact on healthy cells and minimizes systemic side effects, which are common with conventional treatments like chemotherapy. The hydrogel is activated by the elevated levels of glutathione (GSH), which is often present in higher concentrations in tumour cells, ensuring that the drug is released only at the desired location.

APPLICATIONS OF HYDROGEL:

1. **Targeted Drug Delivery:** Hydrogels can carry chemotherapy drugs like Doxorubicin directly to cancer cells, ensuring higher concentrations at the tumour site and reducing damage to healthy tissues. This can significantly improve the efficacy and safety of cancer treatments.

2. **Wound Healing:** Hydrogels are used in dressing for wounds, burns, and ulcers because they maintain a moist environment that promotes healing. They also help to reduce pain and irritation.

3. **Tissue Engineering:** Hydrogels are being researched for use in regenerating tissues or organs. They can be used as scaffolds for stem cell growth or to repair damaged tissues.

4. **Ophthalmic Applications:** Hydrogels are commonly used in contact lenses and eye drops, helping to maintain moisture and provide a barrier against infection and irritation.

5. **Controlled Release Systems:** Hydrogels are used in controlled-release drug systems, where they release medications slowly over time, providing sustained therapeutic effects.

SELF-RELIANCE IN DEFENSE TECHNOLOGY: A PATH TO STRATEGIC INDEPENDENCE

WHY IN THE NEWS?

Three frontline vessels, INS Surat, INS Nilgiri, and INS Vagsheer were commissioned into the Indian Navy, marking a historic first for the country. This significant development highlights India's growing capabilities in defence technology and its commitment to self-reliance. The commissioning of these advanced warships and submarines is seen as a giant leap forward in empowering the Navy, with Prime Minister Narendra Modi emphasizing India's potential to play a major role in shaping global security, economics, and geopolitical dynamics. The event also underscores India's approach to development over expansionism as it strengthens its defence forces to meet both regional and global challenges.



KEY FACTS ABOUT THREE NAVAL VESSELS:

Vessel	INS Nilgiri	INS Surat	INS Vagsheer
Class	Nilgiri-class stealth frigate	Project 15B destroyer	Kalvari-class attack submarine
Type	Stealth Frigate	Stealth Guided Missile Destroyer	Diesel-Electric Attack Submarine
Project	Project 17A	Project 15B	Project 75
Construction	Laid: Dec 2017, Launched: Sept 2019, Delivered: Dec 2024	Launched: 2022, Commissioned: Jan 2025	Laid: 2017, Launched: 2022, Commissioned: 2025
Armament	Supersonic surface-to-surface missiles, MRSAM, 76mm guns, rapid-fire CIWS	Surface-to-air missiles, anti-ship missiles, torpedoes, modern sensors	Torpedoes, anti-ship missiles, advanced sonar
Key Capabilities	Anti-surface, anti-air, anti-sub-marine warfare	AI-enabled, network-centric warfare, offensive operations	Silent and versatile, multi-mission (surveillance, warfare)
Displacement	6,670 tonnes	7,400 tonnes	1,500 tonnes
Speed	30+ knots	30+ knots	N/A (submarine)
Significance	The lead ship of Project 17A, multi-role operations	First AI-enabled warship, enhancing naval capabilities	Final Kalvari-class submarine stealthy attack capabilities

GOVT. INITIATIVES TO PROMOTE SELF-RELIANCE IN DEFENCE TECHNOLOGY:

Initiative	Purpose/Objective
Defence Acquisition Procedure (DAP)	Prioritizes procurement of defence equipment from domestic sources to promote self-reliance.
Positive Indigenisation Lists	Mandates the armed forces to purchase specific defence items from domestic manufacturers.
Make in India	Encourages the Indian industrial ecosystem to participate in defence manufacturing, boosting local capacity.
Foreign Direct Investment (FDI)	Liberalized FDI policies to attract foreign investment in the defence sector, enhancing technological capabilities.
Technology Development Fund (TDF)	Supports the development of defence technologies by MSMEs (Micro, Small, and Medium Enterprises) and startups.
Innovations for Defence Excellence (iDEX)	Fosters innovations in defence technology by startups and MSMEs, encouraging cutting-edge developments.
Defence Industrial Corridors	Establishes defence production corridors in Uttar Pradesh and Tamil Nadu to boost defence manufacturing and infrastructure.

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Defence Production & Export Promotion Policy (DPEPP)	Acts as a guiding document to enhance defence production capabilities and promote defence exports.
SRIJAN (Indigenization Portal)	Facilitates the indigenization of defence items by the Indian industry through a dedicated online platform.
Offset Policy	Reforms aimed at attracting investment, technology transfer, and boosting defence manufacturing capabilities.

WHY IS SELF-RELIANCE IN DEFENCE TECHNOLOGY:

Why is self-reliance in Defence technology is needed:

1. **National Security:** Achieving self-reliance in defence technology enhances national security by reducing dependence on foreign suppliers and mitigating the risk of military crises. According to the Ministry of Defence, India currently imports about 60-70% of its defence equipment.

2. **Economic Growth:** Self-reliance on defence technology contributes to economic growth by creating a large domestic defence industry. The defence sector is one of India's largest employers, providing direct employment to over 1.5 million people, with the potential for further expansion as the domestic industry grows.

3. **Global Standing:** India is currently the 4th largest exporter of defence equipment, with exports reaching $1.59 billion in 2020-21, as per the Ministry of Defence, and aims to achieve $5 billion in defence exports by 2024.

4. **Technological Expertise:** Fostering self-reliance in defence technology helps India retain and enhance its technological expertise. For instance, the development of the indigenous light combat aircraft (LCA) "Tejas" has significantly improved India's aircraft design and manufacturing capabilities.

5. **Developed Indigenous Technologies:** India has developed advanced and complex defence systems, such as the BrahMos missile system and the Arjun tank, which are tailored to meet the unique needs of the Indian Armed Forces.

6. **Increased Domestic Procurement:** The Indian government has substantially increased funding for the procurement of domestically produced defence equipment. In 2022, India allocated ₹70,000 crore for procurement from Indian manufacturers as part of its Defence Acquisition Policy, aiming for self-reliance.

7. **Introduced Funding for Make-I Projects:** Initiatives like the Make-I project, which offers financial support for the development of indigenous defence technologies, are driving the involvement of the private sector.

CHALLENGES IN SELF-RELIANCE IN DEFENCE TECHNOLOGY:

1. **Funding Constraints:** The defence budget, although growing, remains insufficient to support large-scale modernization and advanced technology development. In 2023, India's defence budget was approximately ₹5.25 lakh crore, which is compared to China and the US is less.

2. **Technology Transfer Dependence:** India still relies heavily on technology transfer agreements with foreign companies for producing defence equipment. For instance, the deal with France for Rafale.

3. **Import Dependence:** Despite efforts towards self-reliance, India continues to import a large portion of its military hardware. In 2021, around 63% of India's defence equipment was imported.

4. **Lack of Technological Depth:** India faces challenges in developing the technological depth required for advanced systems. In areas like fighter aircraft engines, India still relies on foreign suppliers, which limits the complete autonomy of the defence sector.

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5. **Bureaucratic Delays:** According to the Comptroller and Auditor General (CAG) report, delays in procurement processes have been a recurring issue, often leading to cost overruns and postponed modernization schedules.

6. **Meeting Quality Standards:** The lack of rigorous quality checks in the early stages of manufacturing has been a barrier, as seen in the production issues with the Arjun tank in the past.

7. **Cyber Security Risks:** With rapid advancements in technology, cybersecurity has become a significant concern. Defence systems are increasingly susceptible to cyberattacks, and incidents like the 2020 cyberattack on Indian military systems highlight the vulnerabilities that need to be addressed in national security protocols.

8. **Funding for Startups:** Startups in the defence sector face challenges in securing consistent funding and market exposure. Only a small fraction of the defence budget is allocated to support innovation from private startups.

PROGRESSIVE WAY FOR SELF-RELIANCE:

1. **Enhancing Domestic R&D:** The Indian government has set up dedicated R&D funds like the Defence Innovation Organisation (DIO), which provides support for cutting-edge defence technologies.

2. **Strengthening Public-Private Partnerships:** Strengthening collaborations between public and private sectors through initiatives like iDEX (Innovations for Defence Excellence) and Technology Development Fund (TDF) will drive innovation.

3. **Expanding Defence Industrial Infrastructure:** The establishment of defence production corridors in states like Uttar Pradesh, Tamil Nadu, and Andhra Pradesh has been a step towards enhancing India's manufacturing capabilities. These corridors aim to boost the defence manufacturing sector and attract foreign investment.

4. **Implementing Efficient Procurement Processes:** Streamlining procurement processes and implementing e-procurement platforms will ensure faster and more efficient acquisition of defence equipment. The Ministry of Defence has already introduced the Defence Acquisition Procedure (DAP) 2020.

5. **Fostering Technological Expertise and Skills:** The government's initiative to establish defence skill development centres in various states is expected to equip youth with skills related to defence manufacturing.

6. **Incentivizing Defence Exports:** Encouraging defence manufacturers to explore global markets will help India achieve its goal of becoming a major exporter of defence equipment. India's Defence Production & Export Promotion Policy, introduced in 2020, aims to increase defence exports to $5 billion by 2024.

7. **Cybersecurity Measures:** Strengthening cybersecurity frameworks is crucial to protect sensitive defence systems from potential threats.

CONCLUSION

The commissioning of advanced warships and submarines like INS Nilgiri, INS Surat, and INS Vagsheer reflects India's growing defence capabilities and commitment to achieving self-reliance. While challenges remain—such as funding limitations, import dependence, and bureaucratic hurdles India is progressively strengthening its defence sector through strategic initiatives, technological development, and fostering innovation. By continuing to invest in research, enhancing domestic manufacturing capacity, and fostering public-private collaboration, India is on the path to becoming a global defence powerhouse, thereby reducing dependency and boosting national security.

Prelims Question:

1. **Which of the following technologies are part of Distributed Energy Resources (DERs)?**

1. Solar Photovoltaic (PV) Panels
2. Large Hydropower Plants
3. Nuclear Power Plants
4. Combined Heat and Power (CHP) Systems

Choose the correct answer:

A. 1 and 2 only
B. 2 and 3 only
C. 1 and 4 only
D. All four

2. Consider the following statements:

1. The SpaDeX mission is led by the Indian Space Research Organisation (ISRO) to demonstrate in-space docking technology.
2. The SpaDeX mission involves two large spacecraft, each weighing over 500 kg.
3. The docking technology used in the SpaDeX mission is the Bharatiya Docking System (BDS), developed indigenously by ISRO.

How many of the statements given above are correct?

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

3. With reference to the Google Willow quantum chip, consider the following statements:

1. Willow uses 105 classical bits to perform quantum computations.
2. The chip incorporates real-time error correction to maintain computation reliability.
3. Willow operates using superconducting transmon qubits, which require ultra-low temperatures for stable performance.

How many of the above-given statements are correct?

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

4. With reference to the injectable hydrogel developed for targeted cancer treatment, consider the following statements:

1. The hydrogel releases anti-cancer drugs in a controlled manner only at the tumour site, minimizing damage to healthy cells.
2. The hydrogel is activated by elevated levels of glutathione, which is commonly found in lower concentrations in tumour cells.
3. Hydrogels can only be used for wound healing and cannot be applied to drug delivery systems.

How many of the above-given statements are correct?

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

5. With reference to the commissioning of the frontline vessels INS Surat, INS Nilgiri, and INS Vagsheer into the Indian Navy, consider the following statements:

1. INS Nilgiri is a Nilgiri-class stealth frigate, commissioned in December 2024.
2. INS Surat is a Project 15B destroyer, which is AI-enabled and designed for network-centric warfare.
3. INS Vagsheer is a diesel-electric attack submarine, and it is the final submarine of the Kalvari-class.

How many of the above-given statements are correct?

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

Answer

1. C	2. A	3. B	4. A	5. B

Mains Question:

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1. Discuss the challenges and opportunities associated with integrating Distributed Energy Resources (DERs) into the power grid.

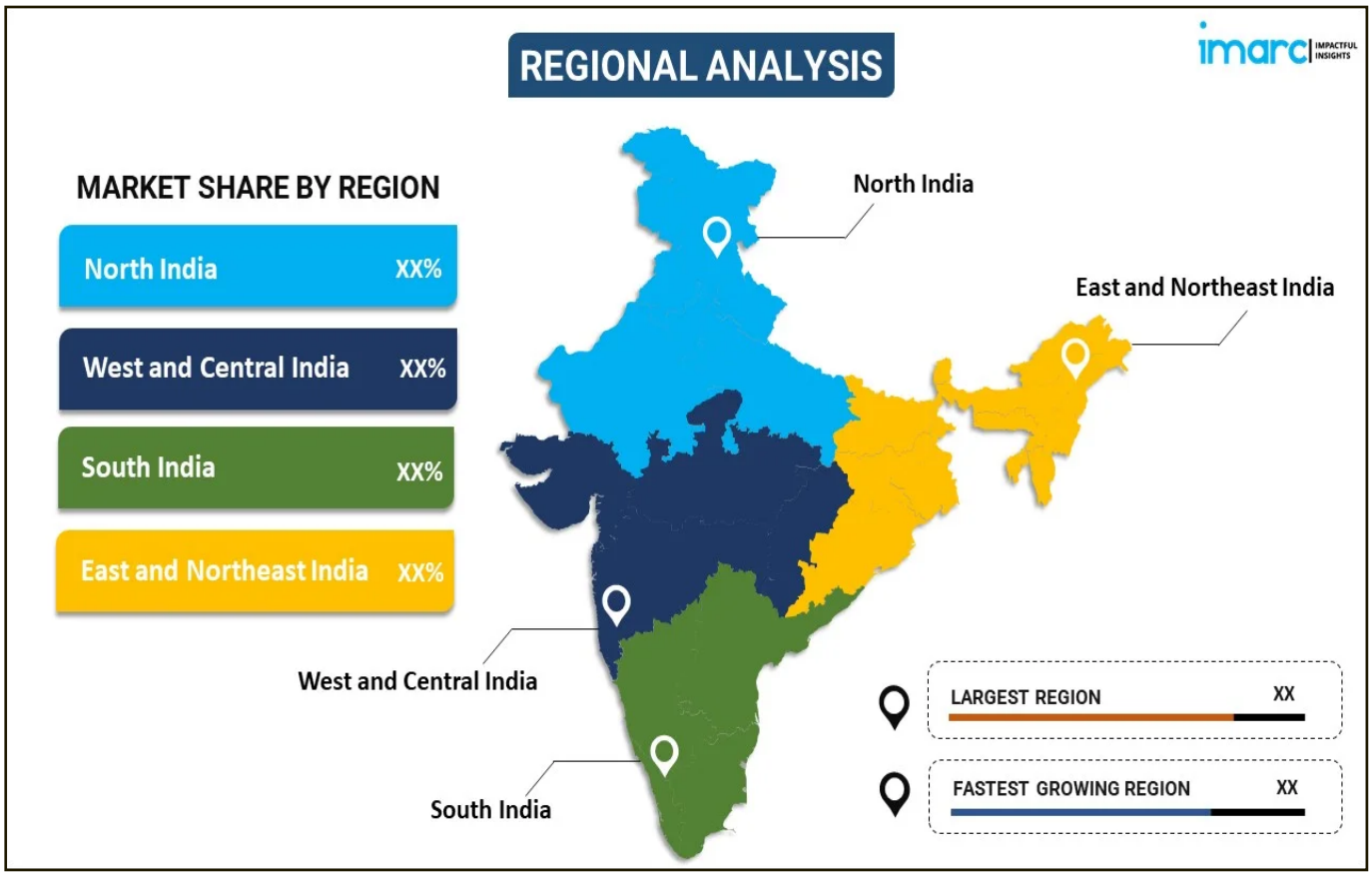
(250 words, 15 marks)

2. Explain the significance of the SpaDeX mission for India's space exploration capabilities and its implications for future space missions.

(250 words, 15 marks)

3. Discuss the importance of self-reliance in defence technology for India and the challenges faced by the country in achieving it. Also, highlight the progressive steps India is taking to address these challenges.

(250 words, 15 marks)





The role of central agencies in strengthing internal security

WHY IN THE NEWS?

The National Investigation Agency (NIA) conducted searches in remote villages of Chhattisgarh and Giridih district of Jharkhand related to a Maoist attack on a polling and security team during last year's state Assembly elections. The NIA seized 1.5 lakh rupees in cash, Naxal pamphlets, booklets, mobile phones, and other incriminating materials. The searches took place in Maoist-affected areas like Rawandiggi, Semra, and Gariyaband, targeting suspects believed to be overground workers supporting the banned CPI (Maoist) group's Mainpur-Nuapada division.



WHAT IS NIA?

The National Investigation Agency (NIA) is a specialized counter-terrorism law enforcement agency in India. It was established to investigate and prosecute cases related to terrorism, insurgency, and crimes that have national or cross-border implications. The NIA operates across state boundaries, investigating crimes that threaten India's sovereignty, security, and integrity. It was formed in response to the 26/11 Mumbai terror attacks, which highlighted the need for a central agency dedicated to dealing with terrorism-related matters. The NIA has the authority to conduct searches, seizures, and arrests and maintain a database of terrorist organizations and their members.

ESTABLISHMENT OF NIA:

The NIA was formally established through the National Investigation Agency Act of 2008, passed by the Parliament of India on December 31, 2008. It came into being as a response to the growing threat of terrorism in India and the challenges in coordinating investigations across different states. Its role is to centralize and streamline the investigation of serious terror-related crimes. The agency is headquartered in New Delhi, with branches in several cities, and its functioning is Subject to scrutiny, particularly regarding its jurisdiction and coordination with other law enforcement agencies.

COMPOSITIONS OF NIA:

1. **Director-General (DG):** The head of the agency, responsible for overall operations.
2. **Officers and Investigating Staff:** Officers from the Indian Police Service (IPS), IRS, and other specialized units like the CBI, BSF, and CISF.
3. **NIA Branches:** Regional offices across India (e.g., Mumbai, Kolkata, Chennai) headed by senior officers like Superintendent of Police (SP) or Deputy Inspector General (DIG).

4. **Specialized Cells:** Focus on terrorism, organized crime, cross-border crime, cybercrimes, and Naxal activities.
5. **Legal and Technical Staff:** Legal experts handle prosecutions, while technical staff support investigations, especially in digital forensics and cyber issues.
6. **Centralized Functions:** NIA maintains a national database on terrorist organizations and key individuals, streamlining operations.
7. **Advisory Body:** Includes officials from agencies like the CBI, IB, and RAW for strategic guidance.
8. **International Coordination:** NIA works with agencies like Interpol and CIA for cross-border investigations.

POWER AND FUNCTIONS OF NIA:

Powers of NIA	Functions of NIA
1. Investigative Authority Across States	**1. Counter-Terrorism**
The NIA can investigate terror-related crimes and other offences that threaten India's sovereignty, integrity, and security, across state borders, without needing permission from state governments.	Primarily focuses on preventing, investigating, and prosecuting terror-related offences, including those involving international links.
2. Conducting Searches and Seizures	**2. Investigation of Cross-Border Crimes**
The NIA has the authority to carry out searches, seize property, and confiscate items related to criminal activities, especially those connected to terrorism.	Investigates crimes with cross-border implications, such as foreign funding of terrorism, international terror networks, and cross-border smuggling of weapons or explosives.
3. Arrests	**3. Maintaining National Security**
The agency has the power to arrest individuals involved in terror activities or related crimes, ensuring that perpetrators are brought to justice.	Works to safeguard India's sovereignty, integrity, and security by tackling threats from both domestic and international sources, including organized crime and insurgency.
4. Evidence Collection	**4. Coordination with Other Agencies**
The NIA can collect evidence from various sources, including digital devices, documents, and witnesses, to support its investigations and prosecutions.	Coordinates with other Indian security agencies (CBI, IB, RAW, local police) and international agencies (like Interpol) to combat terrorism and organized crime.
5. Prosecution	**5. Intelligence Gathering**
The NIA is authorized to prosecute individuals for offences related to terrorism, insurgency, and national security under various Indian laws like the UAPA.	Gathers intelligence related to terrorist activities and criminal organizations, aiding in preemptive actions against threats.
6. Monitoring and Maintaining a Database	**6. Legal and Forensic Functions**
It can maintain a national database of terrorist organizations, their members, and their activities, which helps in tracking and analyzing terror-related threats.	Handles prosecution of terror cases in courts, working alongside legal and forensic experts to ensure evidence is admissible and robust i

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LAW IMPLEMENTED BY NIA:

1. **The Atomic Energy Act, 1962:** Governs the regulation and safety of nuclear energy and materials in India.
2. **The Unlawful Activities (Prevention) Act, 1967:** Targets terrorism, bans terrorist organizations and prevents unlawful activities threatening India's sovereignty.
3. **The Anti-Hijacking Act, 1982:** Addresses the hijacking of aircraft, with severe penalties, including death.
4. **The Suppression of Unlawful Acts Against the Safety of Civil Aviation Act, 1982:** Focuses on acts endangering civil aviation safety, in line with international aviation security conventions.
5. **The SAARC Convention (Suppression of Terrorism) Act, 1993:** Implements the SAARC agreement to combat terrorism in South Asia through regional cooperation.
6. **The Suppression of Unlawful Acts Against Safety of Maritime Navigation and Fixed Platforms Act, 2002:** Deals with maritime terrorism and threats to ships and offshore platforms.
7. **The Weapons of Mass Destruction and Their Delivery Systems Act, 2005:** Prohibits activities related to the proliferation of WMDs and their delivery systems.
8. **Offenses under IPC:**

Chapter VI (Sections 121-130): Deals with waging war against India, sedition, and related offences. **Sections 489-A to 489-E:** Addresses counterfeit currency crimes.

ROLE OF NIA TO STRENGTHEN INTERNAL SECURITY:

1. **Counter-Terrorism:** Investigates and prosecutes terror-related crimes nationwide, without needing state approval, and takes over cases from state police when necessary.
2. **Setting Standards:** Establishes best practices for counter-terrorism investigations to ensure effectiveness and excellence.
3. **Law Evaluation:** Analyzes terrorism laws in India and abroad, suggesting reforms to improve legal frameworks.
4. **Coordination:** Collaborates with national and international agencies like CBI, IB, and Interpol to combat cross-border terrorism and organized crime.
5. **Deterrence:** Creates a deterrent effect by successfully prosecuting terrorist activities, discouraging groups from operating in India.
6. **Fighting Insurgency:** Tackles insurgency and organized crime, contributing to overall national security.

LIMITATIONS OF NIA:

1. **Jurisdictional Restrictions:** While the NIA has extensive powers, its jurisdiction is limited to specific types of crimes related to terrorism, national security, and cross-border crimes. It may face challenges when dealing with crimes that don't directly fall under its scope.
2. **Coordination Challenges:** The NIA often faces difficulties in coordinating with state police forces and local agencies, especially in states with varying levels of cooperation or where local interests conflict with national security concerns.
3. **Dependence on State Governments:** Though the NIA can take over cases, it still requires the cooperation of state governments, which can sometimes delay or complicate investigations, particularly in sensitive areas.
4. **Resource Constraints:** The NIA operates with limited resources and faces challenges in dealing with a vast range of terrorist and insurgency-related activities. It may struggle with manpower, technology, and infrastructure in certain cases.
5. **Legal and Bureaucratic Delays:** Delays in the judicial process and bureaucratic hurdles can slow down the NIA's ability to prosecute cases effectively and timely.

WAY FORWARD TO STRENGTHEN THE NIA:

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1. **Expanding Jurisdiction:** Broadening the NIA's jurisdiction to cover a wider range of national security-related crimes would help it address emerging threats more effectively.
2. **Improved Coordination Mechanisms:** Strengthening coordination between the NIA, state police, and other agencies through better communication and centralized databases would streamline investigations and enhance collaboration.
3. **Increased Funding and Resources:** Allocating more funds for modern technology, forensic capabilities, and enhanced manpower would improve the NIA's operational efficiency.
4. **Capacity Building:** Regular training and skill development for NIA personnel, especially in emerging fields like cybercrime, can enhance their investigative capabilities.
5. **Faster Legal Processes:** Reforms in the judicial process for terrorism-related cases can reduce delays, ensuring quicker trials and convictions.
6. **International Cooperation:** Strengthening international partnerships and intelligence-sharing networks with agencies like Interpol, the FBI, and other counter-terrorism bodies can aid in handling cross-border terrorism more effectively.

CONCLUSION

The National Investigation Agency (NIA) plays a crucial role in safeguarding India's national security by investigating and prosecuting terrorism-related crimes, insurgency, and other threats. Its specialized capabilities, including cross-border jurisdiction, coordination with other law enforcement agencies, and effective use of intelligence, make it an essential institution in counter-terrorism efforts. However, the NIA faces certain limitations, such as jurisdictional restrictions, coordination challenges with state authorities, and resource constraints. Strengthening the agency's operational capacity, expanding its jurisdiction, improving coordination mechanisms, and enhancing international cooperation will enable it to more effectively counter emerging threats and maintain national security.

ORGANIZED CRIME IN INDIA: A GROWING THREAT TO STABILITY

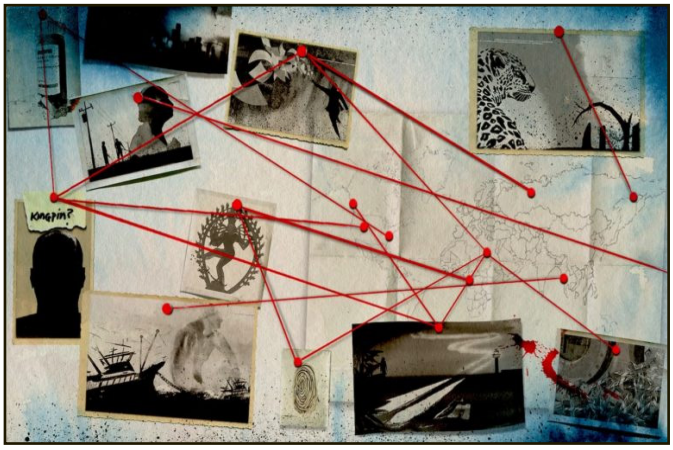
WHY IN THE NEWS:

Organized crime remains a significant global threat, undermining nations' social, political, and economic stability. In India, the impact of organized crime is particularly alarming, with far-reaching effects on businesses, communities, and political institutions. These activities disrupt governance and development and pose a serious challenge to public safety, demanding urgent attention and effective countermeasures.



INDIA'S VARIOUS CLASSES OF ORGANIZED CRIME:

In India, organized crime encompasses a wide range of illegal activities undertaken by criminal syndicates to gain power, amass wealth, and expand their operations. These activities exploit systemic weaknesses and create significant social, economic, and environmental challenges.



Crime Type	Definition
Drug Trafficking	Smuggling, distribution, and production of illegal drugs like heroin, cocaine, and synthetic substances.
Human Trafficking	Exploitation of vulnerable individuals for forced labor, sexual abuse, and organ trafficking.
Extortion and Protection Rackets	Forcing businesses and individuals to pay "protection money" under threats or intimidation.
Illegal Wildlife Trafficking	Poaching, smuggling, and trading of wildlife and wildlife products, threatening biodiversity.
Cybercrime	Crimes involving digital systems, including hacking, phishing, and online fraud.
Financial Fraud and Money Laundering	Fraudulent schemes like Ponzi scams and laundering criminal proceeds to hide illegal origins.
Illegal Arms Trafficking	Smuggling and trading of illicit firearms, contributing to violence and insecurity.
Counterfeiting and IP Theft	Production and distribution of fake goods, including luxury items and pharmaceuticals, and intellectual property violations.
Illegal Gambling and Betting	Operating clandestine gambling and betting platforms tied to corruption and money laundering.
Smuggling	Transporting contraband goods such as gold, electronics, and counterfeit currency across borders.
Contract Killing and Assassinations	Targeted killings carried out by hired hitmen for personal or financial motives.
Illegal Trade in Timber and Sandalwood	Exploiting forestry loopholes to traffic valuable timber, causing environmental harm.

INITIATIVES AND LAWS IN INDIA TO COMBAT ORGANIZED CRIME:

Act/Section	Role in Combating Organized Crime
MCOCA (Maharashtra Control of Organised Crime Act)	Enacted in 1999 to enable harsh punishments for organized crime syndicates. Empowers law enforcement to intercept communications, seize property, and monitor suspects.
PMLA (Prevention of Money Laundering Act)	Passed in 2002 to prevent money laundering and confiscate illicit gains. Establishes the Enforcement Directorate to investigate and prosecute money laundering linked to organized crime.
UAPA (Unlawful Activities Prevention Act)	Aims to prevent illegal activities, including terrorism and organized crime. Grants powers to declare individuals and groups as "terrorists" and take preventive measures like detention and property seizure.

NDPS Act (Narcotic Drugs and Psychotropic Substances Act)	Enacted in 1985 to curb drug trafficking and misuse of narcotics. Imposes stringent penalties for manufacturing, distributing, and using illegal drugs.
Bharatiya Nyaya Sanhita (BNS) Section 111	Defines organized crime as any unlawful activity involving a group acting in concert for material benefit, including kidnapping, extortion, economic offenses, and cyber-crimes.
Bharatiya Nyaya Sanhita (BNS) Section 112	Defines petty organized crime, such as organized theft in crowded areas like pickpocketing or stealing from passengers.
Arms Act	Regulates the sale, purchase, and possession of weapons. Aims to prevent the proliferation of illicit firearms used by organized crime syndicates.
Wildlife Protection Act (1972)	Protects wildlife and prevents illegal trade in wildlife and products. Targets syndicates involved in poaching and trafficking endangered species.
Immoral Traffic (Prevention) Act, Bonded Labor System (Abolition) Act, Child Labour (Prohibition and Regulation) Act	Focuses on anti-human trafficking measures, victim protection, and prosecuting individuals involved in forced labor and child trafficking networks.
Companies Act (2013)	Regulates corporate activities to prevent fraud, insider trading, and money laundering linked to organized crime operations.
POCSO Act (Protection of Children from Sexual Offences Act)	Enacted in 2012 to protect children from sexual abuse and exploitation, particularly by organized crime groups involved in child pornography and trafficking.
National Crime Records Bureau (NCRB)	Collects and maintains data on crimes across India, assisting law enforcement agencies in tracking organized crime trends and providing vital intelligence.
Enforcement Directorate (ED)	Established under the PMLA, the ED investigates money laundering and financial crimes linked to organized crime syndicates.
State Police and Anti-Organized Crime Units	State-specific units, such as Maharashtra's Anti-Organized Crime Unit, focus on curbing local organized crime syndicates.
Surveillance Technology	Advanced surveillance tools such as wiretapping, electronic monitoring, and GPS tracking are used by law enforcement agencies to monitor organized crime activities and networks.
Cybercrime Tracking	The government has set up specialized cybercrime cells to track online fraud, hacking, and other cybercrimes linked to organized criminal groups.

THREATS POSED BY ORGANIZED CRIME TO INDIA'S NATIONAL SECURITY

1. POLITICAL CHALLENGES:

- **Instability**: Organized crime undermines the stability of governments by fostering corruption, facilitating the manipulation of elections, and creating an atmosphere of fear and coercion.

- **Law and Order Issues**: States facing organized crime, like Manipur, experience significant law and order disruptions, weakening the state's ability to maintain control and stability in key regions.
- **Disruption of State Power**: Criminal syndicates, particularly in border areas, often align with local insurgent groups, challenging the authority of the state and complicating governance.

2. ECONOMIC CHALLENGES:

- **Black Money**: Organized crime generates black money through illicit activities like extortion, drug trafficking, and illegal mining. This undermines the legitimate economy and promotes corruption at all levels of society.
- **Tax Evasion**: Criminal syndicates engage in massive tax evasion schemes, depriving the government of critical revenues needed for national development and welfare.
- **Money Laundering**: Through money laundering networks, criminal groups bring illicit funds into the mainstream economy, distorting financial systems and promoting illegal economic practices.

3. SOCIAL CHALLENGES:

- **Human Trafficking**: Organized crime leads to widespread human trafficking, particularly of women and children, causing severe social and psychological harm while also contributing to the exploitation of vulnerable populations.
- **Loss of Lives**: Criminal activities such as contract killings, armed violence, and trafficking have resulted in countless innocent lives lost, creating widespread trauma in communities.
- **Women's Safety**: The rise in organized crime has directly contributed to a growing sense of insecurity for women, particularly in regions where crime syndicates operate with impunity.
- **Youth Radicalization**: Criminal syndicates, often linked with extremist groups, target vulnerable youth, luring them into illegal activities or radicalizing them for political or ideological reasons.
- **Disruption of Social Harmony**: The widespread impact of organized crime disrupts social harmony by creating divisions between communities, fostering distrust, and promoting violence, which erodes social cohesion.

CHALLENGES IN TACKLING ORGANIZED CRIME IN INDIA

- **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.
- **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.
- **Transnational Nature of Crimes**: Organized crime increasingly operates across borders, with syndicates exploiting international routes for activities like drug trafficking and human trafficking.
- **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.
- **Gray Zone Warfare Using Cyber Technology**: The use of advanced cyber technologies by organized criminals has blurred the lines between traditional and digital crimes. Cyber-enabled terrorism, like the rise in ransomware attacks on Indian government institutions, demonstrates the increasing threat posed by this new form of warfare.
- **Use of Advanced Technology by Criminals**: Criminals are using high-tech methods to evade detection, making it difficult for law enforcement to keep up. In the gold smuggling case in Kerala, criminals used hidden compartments and sophisticated tools to smuggle gold, demonstrating the evolving nature of organized crime.

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- **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. Many state police forces struggle with the growing threat of cybercrime due to outdated skills and technology.
- **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. In some high-profile cases, this lack of coordination has resulted in delays and missed opportunities to dismantle criminal networks.
- **Political Patronage to Criminals**: Political figures sometimes protect organized criminals, allowing them to operate with impunity. Reports from Uttar Pradesh and Bihar reveal how local politicians have been alleged to shelter criminals in exchange for support, complicating efforts to combat crime effectively.
- **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, thereby weakening law enforcement efforts.

WAYS TO STRENGTHEN THE SECURITY STRUCTURE AGAINST ORGANIZED CRIME

1. **National Security Council (NSC)**: The NSC, formed in 1998, guides national security decisions. The Strategic Policy Group, led by the National Security Advisor, ensures coordinated action against organized crime across various agencies.
2. **Internal Security Ministry**: A dedicated ministry can streamline internal security responses, focusing on internal disturbances and coordinated crime prevention under Article 355 of the Constitution.
3. **Improved Cooperation Among Agencies**: Enhanced coordination among security agencies like CBI, ED, and state police will improve intelligence sharing and response times to organized crime activities.
4. **Bharatiya Nyaya Sanhita (BNS)**: The BNS defines organized crime, as enabling law enforcement to tackle crimes like kidnapping, extortion, and human trafficking effectively.
5. **Strengthening Police Forces**: Providing regular training in areas such as cybercrime and money laundering will improve the capability of state police to combat organized crime.
6. **Balancing Security and Human Rights**: National security measures should respect human rights, ensuring that anti-crime actions do not infringe on civil liberties.
7. **Border Fencing and Surveillance**: Strengthening border security, like along the Myanmar-India border, will help prevent smuggling, trafficking, and other cross-border crimes.
8. **Support for Border Communities**: Socio-economic development in border areas reduces vulnerabilities and prevents exploitation by criminal syndicates.
9. **Advanced Technology Against Cybercrime**: Utilizing technologies like AI and blockchain for tracking cybercriminals and setting up specialized cybercrime units will enhance India's digital security.
10. **Legal and Judicial Reforms**: Speeding up prosecutions and establishing fast-track courts for organized crime cases will deter criminal syndicates and strengthen the justice system.

CONCLUSION

In conclusion, organized crime poses a significant threat to India's security, especially in the current technological era. Over the past decade, India has implemented various measures to combat organized crime, from strengthening legal frameworks to enhancing border security. However, sustained efforts, continuous monitoring, and adaptable strategies are essential to keep organized crime at bay and protect national security in the long term.

LEFT-WING EXTREMISM: A PERSISTENT THREAT TO INDIA'S INTERNAL SECURITY



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WHY IN THE NEWS?

In one of the deadliest Maoist attacks in recent years, eight District Reserve Guard (DRG) personnel and one civilian driver were killed when insurgents detonated a powerful 70 kg IED under their vehicle in Chhattisgarh's Dantewada district. The attack occurred near Aranpur village in the Kutru police station area around 2:15 PM, targeting DRG personnel returning from an anti-Maoist operation in their Scorpio vehicle.





ORIGIN OF LEFT-WING EXTREMISM

Beginnings (1967): The movement began in Naxalbari, Phansidewa, and Khoribari in West Bengal's Darjeeling District, led by Charu Majumdar, Kanu Sanyal, and Jangal Santhal from the Communist Party of India (Marxist).

Early Revolt: It started as a peasant revolt.

Formation of CPI (M-L) (1969): Two years later, the Communist Party of India (Marxist–Leninist) was established.

Spread: Initially in West Bengal, the movement expanded to rural areas in southern and eastern India, including Telangana, Andhra Pradesh, Odisha, and Chhattisgarh.

Current Groups: Most Naxal groups trace their roots to CPI (M-L). The Maoist Communist Centre (MCC) was formed in 1975 and merged with the People's War Group in 2004 to create CPI (Maoist).

PREVALENCE OF MAOISM IN INDIA

History: Maoist attacks, or Left-Wing Extremism, have been present in India for about 50 years.

Casualties: Approximately 15,000 lives have been lost due to Naxal violence in the last 25 years.

Early Movement: The movement started in the 1960s, led by Charu Mazumdar. It seemed to wane after he died in 1972.

Revival: Despite setbacks, the People's War group formed in 1980 kept the movement alive. The merger of the People's War and MCC in 2004 led to the formation of CPI (Maoist), which revived and spread the movement.

Current Status: As of February 2019, Maoist extremism affects 90 districts across 11 states in India, known as the Red Corridor.

FACTORS RESPONSIBLE FOR THE RISE OF LEFT-WING EXTREMISM (LWE)

Tribal Dissatisfaction: The Forest (Conservation) Act of 1980 restricted tribes from using forest resources crucial for their livelihoods, leading to dissatisfaction.

Displacement: Development projects, mining, and other initiatives have displaced tribal populations in LWE-affected areas.

Exploitation of Vulnerable Individuals: Those without sustainable support are more likely to join the Naxalite movement, which recruits them by offering weapons, money, and resources.

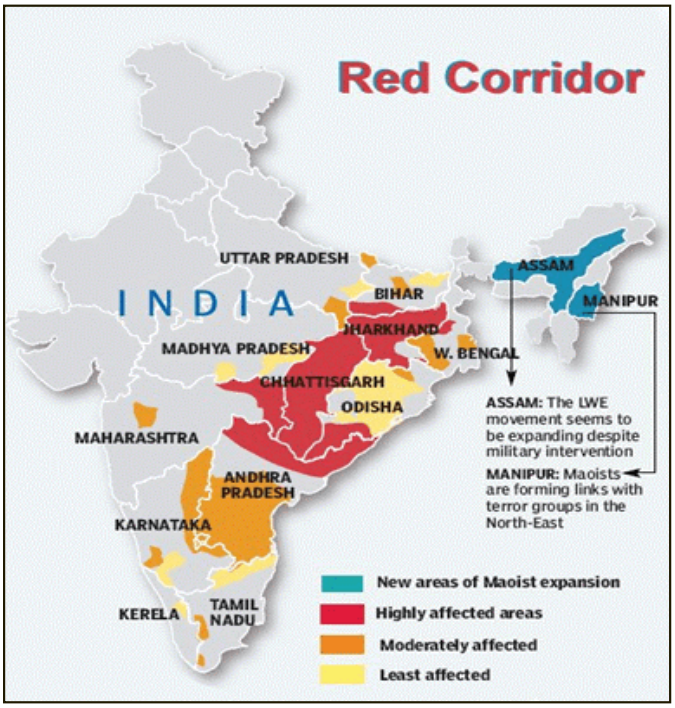
Socio-Economic Gaps: The government often measures success based on reduced violence rather

than focusing on long-term developmental efforts in affected areas.

Lack of Technical Intelligence: Ineffective strategies against Naxalism result from insufficient technical intelligence and information.

Poor Post-Control Administration: After police regain control, essential services often fail to reach local populations, leaving them unsupported and vulnerable.

Confusion in Approach: There is a lack of consensus on whether Naxalism should be addressed as a social issue or a security threat. State governments often view it as a central government responsibility, leading to insufficient local proactive measures.



GOVERNMENT INITIATIVES TO FIGHT LWE:

Scheme/Initiative	Details	Success/Impact
Operation Green Hunt	Large-scale deployment of security forces in Naxal-affected areas.	Reduced insurgency in some regions but faced criticism for collateral damage and lack of long-term impact.
Aspirational Districts Programme	Rapidly develops districts lagging in health, education, and infrastructure.	Improved HDI indicators in many districts but challenges in sustaining development remain.
SAMADHAN Doctrine	Comprehensive strategy focusing on leadership, intelligence, technology, and cutting financing.	Enhanced coordination among agencies and targeted operations, but requires deeper focus on socio-political roots.
ROSHNI Initiative	Trains and places rural youth from 27 LWE-affected districts under a skills development program.	Empowered youth through job placements, reducing vulnerability to Naxal recruitment.
Road Connectivity	Sanctioned 17,462 km of roads; 11,811 km completed.	Improved access to remote areas, boosting economic opportunities and security operations.
Mobile Connectivity	Installed 2,343 mobile towers in the first phase; 2,542 towers planned for the second phase.	Strengthened communication in remote areas, improving governance and reducing isolation of communities.
Ekalavya Residential Schools	245 schools sanctioned in 90 LWE-affected districts; 121 operational.	Provided quality education and infrastructure for tribal children, fostering better opportunities.
Financial Inclusion	Opened 1,258 bank branches, 1,348 ATMs, and 4,903 post offices in worst-hit districts.	Increased financial access for marginalized communities, promoting economic inclusion and reducing extortion reliance.

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ISSUES LIMITING THE ELIMINATION OF LEFT-WING EXTREMISM (LWE) IN INDIA

1. EXPANSION AND NEW DEVELOPMENTS

- **Spread to New Areas**: Naxal groups are extending their influence to previously unaffected regions, complicating containment efforts.
- **Increased Militarization**: Enhanced weaponry and tactical sophistication pose a significant challenge to security forces.
- **Targeted Killing of Informers**: Systematic elimination of suspected informers disrupts intelligence gathering.
- **Propaganda and Engagement**: Heightened use of civil society groups, social media, and urban networks to propagate their agenda.
- **Urban Penetration**: Efforts to infiltrate urban centers and mobilize working-class movements.
- **Over-Ground Organizations**: Creation of legitimate-seeming organizations to support extremist objectives.
- **Use of Technology**: Advanced communication and propaganda methods hinder interception efforts.
- **Large-Scale Extortion**: Industries and contractors in Naxal-dominated areas are frequently extorted, funding insurgent activities.

2. CHALLENGES IN GOVERNMENT MEASURES

- **Intelligence Gaps**: Traditional intelligence methods, such as police receivers, are inadequate against evolving Maoist tactics.
- **Large Troop Operations**: Despite deploying larger forces, recent attacks reveal operational vulnerabilities.
- **Trust Deficit**: Cultural differences and perceived indifference by security forces erode trust with local populations.
- **Protection of Informers**: Failure to protect informers leads to fear, reduced cooperation, and loss of critical intelligence.
- **Overemphasis on Security Measures**: Excessive focus on militarized responses neglects the socio-economic and political causes fueling extremism.
- **Political Support**: Covert backing from local politicians undermines anti-LWE efforts and fosters insurgency.

WAY FORWARD

- **Peace Agreements:** The government and Maoists should negotiate peace agreements similar to the Mizo Accord.
- **Comprehensive Development:** Ensure all-round development of Naxal-affected areas.
- **Local Engagement:** Employ more local personnel in administrative roles to bridge the trust deficit and involve civil society in supporting tribal communities.
- **Small-Scale Operations:** Use small, efficient teams like the Greyhounds for better results.
- **Careful Policy Implementation:** Implement policies that provide indirect benefits, such as the Forest Rights Act, of 2006, with careful consideration.
- **IED Prevention:** Develop innovative measures to prevent IED-related incidents.
- **Capacity Building:** Focus on capacity-building and modernization of local police forces.
- **Surrender Policy:** Rationalize surrender policies to reintegrate individuals caught in LWE into mainstream society.
- **Focused Approach:** Adopt a time-bound approach to eliminate LWE groups and ensure comprehensive development of affected regions.
- **Youth Unemployment:** Address the youth bulge and unemployment issues to prevent internal security threats.
- **Synchronized Efforts:** The Centre and states must work together to eliminate radicalization and support affected populations.

CONCLUSION

Effectively addressing LWE requires a holistic approach, focusing on socio-economic development alongside security measures. Tackling poverty and tribal grievances undermines extremist ideologies, while infrastructure development counters Maoist propaganda and fosters growth. In a democracy with

legitimate grievance redressal mechanisms, violence-based ideologies are unsustainable. A balanced strategy integrating development and security is vital for lasting peace and stability.

DRUG TRAFFICKING AND NATIONAL SECURITY

WHY IN THE NEWS?

The news is focused on a regional conference on "Drug Trafficking and National Security" chaired by Union Home Minister Shri Amit Shah in New Delhi. The conference, organized by the Narcotics Control Bureau (NCB), highlights the growing issue of drug trafficking and its impact on national security, particularly in northern India. Key developments include the launch of the Drug Disposal Fortnight, the inauguration of the NCB's new office in Bhopal, and the extension of the MANAS helpline to all states and Union Territories. A major aspect of the conference is strengthening national efforts to combat drug trafficking, with a focus on improving coordination among different agencies, enhancing forensic capabilities, and ensuring faster trials of drug-related cases.

DRUG TRAFFICKING IN INDIA:

1. **Drug Trafficking Data**
   - **Heroin and Opium:** In 2021, nearly 3,000 kg of heroin were seized at Mundra Port in Gujarat, one of the largest busts in India's history.
   - **Methamphetamines:** Significant seizures of methamphetamines have been reported in northeastern states like Manipur, Nagaland, and Mizoram, where these drugs are trafficked from Myanmar.
   - **Cannabis**: Cannabis remains prevalent, with major seizures reported across states like Odisha and Madhya Pradesh.
2. **Role of the Golden Triangle:** The Golden Triangle (Myanmar, Laos, Thailand) is a major source of heroin, methamphetamines, and opium. Drugs from this region flow into India's northeastern states, which share borders with Myanmar, making them prime trafficking routes. This area is also home to insurgent groups, further complicating security.
3. **Drug Trafficking as a National Security Threat**
   - **Funding Terrorism and Insurgency:** Drug cartels fund insurgent groups and terrorists in India, including militant outfits in the northeast and Kashmir. The Taliban in Afghanistan uses the opium trade to fund its activities, impacting India indirectly.
   - **Corruption and Law Enforcement:** Drug trafficking fuels corruption in law enforcement, weakening border security and enabling trafficking syndicates to operate with impunity. This compromises India's ability to protect its borders and enforce anti-trafficking laws.
   - **Regional Instability:** The northeastern states are highly vulnerable due to their proximity to Myanmar, a major drug producer. The Attari-Wagah border with Pakistan is also a critical route for opium trafficking, adding to the threat.
   - **Social and Economic Impact:** Drug abuse, especially among youth, leads to violence, crime, and a burden on the healthcare system. It also destabilizes communities and erodes the socio-economic fabric.
4. **Economic and Social Consequences**
   - **Cost to Public Health:** Rising drug abuse strains India's healthcare system, with increasing numbers of drug-related health crises and rehabilitation needs.
   - **Parallel Economies**: The drug trade fosters illegal economies, fueling corruption and money laundering, which undermines legitimate businesses.
5. **Strengthening Efforts to Combat Drug Trafficking**
   - **Border Security:** Improve surveillance with advanced technologies and enhanced border security measures.
   - **Regional Cooperation:** Collaborate more effectively with neighbouring countries like Myanmar and Afghanistan to curb cross-border trafficking.
   - **Anti-Corruption Measures:** Strengthen internal controls to combat corruption within law enforcement agencies.
   - **Public Awareness:** Expand prevention, education, and rehabilitation programs, focusing on vulnerable communities and youth.

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GOVT INITIATIVES:

1. **Legal Frameworks:**
   - **NDPS Act (1985):** Prohibits the production, sale, and trafficking of narcotic drugs and psychotropic substances, with strict penalties for violators.
   - **UAPA (1967):** Targets terrorism and insurgent activities funded by drug trafficking, especially in sensitive regions like Jammu & Kashmir and the northeast.
   - **PMLA (2002):** Enables action against money laundering linked to drug trafficking, allowing asset seizure and prosecution.
2. **Other Measures:**
   - **Border Security:** Strengthened border fencing, especially along India's borders with Pakistan and Myanmar, and enhanced surveillance using drones and sensors to curb drug trafficking.
   - **Integrated Border Management System (IBMS):** Facilitates real-time data sharing between agencies for better control over illegal cross-border activities.
3. **Revenue Department Initiatives:**
   - **Customs and DRI Enforcement:** The Directorate of Revenue Intelligence (DRI) intercepts drug consignments at major ports and collaborates with international agencies to track trafficking networks.
   - **Financial Monitoring:** The Financial Intelligence Unit (FIU-IND) monitors suspicious transactions linked to drug money laundering.
4. **Awareness and Prevention Programs:**
   - **Narcotics Control Bureau (NCB):** Runs national awareness campaigns targeting youth, emphasizing the dangers of drug abuse and encouraging the use of the National Narcotics Helpline (MANAS).
   - **Schools and Communities:** Drug prevention programs in schools and communities focus on education, counselling, and early intervention, aiming to curb youth involvement in drug abuse.
5. **International Cooperation:**
   - **Bilateral and Multilateral Cooperation:** India works with international organizations like the UNODC and neighbouring countries to share intelligence and coordinate anti-trafficking efforts, focusing on transnational drug routes.
   - **Cross-border Law Enforcement:** Cooperation with neighbouring countries like Myanmar, Afghanistan, and Pakistan to jointly combat drug trafficking and dismantle international networks.

REASONS FOR THE PREVALENCE OF DRUG TRAFFICKING:

1. **Economic Incentives:** Drug trafficking can provide massive profits, especially when production costs in source countries are significantly lower than the wholesale prices in consumer countries.
2. **High Demand for Illicit Drugs:** In countries with widespread drug use, such as the U.S., there is a consistent demand for illegal drugs like cocaine, heroin, and marijuana. This demand ensures a constant market for traffickers to supply.
3. **Poverty and Lack of Opportunity:** In many regions with high levels of poverty and unemployment, individuals often turn to drug trafficking as a means of survival when legitimate work opportunities are scarce.
4. **Political Instability and Corruption:** In countries with weak governance or political instability, drug cartels can thrive due to the corruption of law enforcement and political figures who enable illegal operations.
5. **Gang and Criminal Organization Influence:** Drug trafficking is often controlled by gangs and criminal organizations, which use violence and intimidation to protect their interests. These groups rely on drug trade revenues to fund their activities and expand their influence.
6. **Addiction and Dependency:** Addiction to drugs fuels trafficking, as users become involved in the trade to sustain their own habits. The cycle of addiction and trafficking is self-perpetuating, creating ongoing demand and supply.
7. **Geography and Accessibility:** Drug-producing regions, often remote or difficult to monitor (such as jungles or mountainous terrains), make it easier for traffickers to produce and transport drugs while evading detection.

WAY TO REDUCE DRUG TRAFFICKING:

1. **Strengthening Border Security:** Implement

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advanced technologies like drones, thermal imaging, and AI to monitor borders more effectively, helping to detect and prevent drug smuggling operations before they enter countries.

2. **International Cooperation:** Foster stronger international cooperation between countries, including intelligence sharing, joint task forces, and extradition agreements, to combat transnational drug trafficking networks.

3. **Enhancing Law Enforcement and Corruption Prevention:** Invest in training and equipping law enforcement agencies to better combat drug trafficking. At the same time, implementing stronger anti-corruption measures within governments can prevent traffickers from bribing officials to escape legal consequences.

4. **Demand Reduction Programs:** Focus on reducing the demand for illegal drugs through education, prevention programs, and public awareness campaigns. Address the root causes of addiction, such as poverty and mental health issues, by providing support services to at-risk communities.

5. **Alternative Livelihood Programs:** Provide farmers in drug-producing regions with viable alternative crops and resources to help them transition away from illegal cultivation. Support for sustainable agriculture and market development can help reduce the appeal of illegal drug production.

6. **Community and Social Support Systems:** Create strong community-based programs aimed at providing economic opportunities, job training, and support for those affected by addiction. Community programs that focus on mental health and rehabilitation can help break the cycle of trafficking and abuse.

7. **Criminal Justice Reforms:** Ensure that penalties for drug trafficking are severe enough to deter criminal activity but also focus on rehabilitation for offenders involved in low-level trafficking. A balanced approach that includes treatment, education, and reintegration programs can reduce recidivism.

CONCLUSION

Drug trafficking poses a serious threat to national security, public health, and social stability in India. Driven by economic incentives, high demand, poverty, political instability, and organized crime, it fuels violence, terrorism, and corruption. India's proximity to drug-producing regions like Myanmar further complicates the issue. Combating this requires a multi-pronged approach: strengthening border security with advanced technologies, enhancing international cooperation, improving law enforcement, and tackling corruption. Additionally, demand reduction, alternative livelihoods for farmers, and community support systems are essential to breaking the cycle of trafficking.

Prelims Question:

1. Consider the following statements:

Statement-I: NIA was set up by the top parliament in 2008
Statement-II: There was a terrorist attack in India that led to the establishment of NIA.

Which one of the following is correct in respect of the above statements?

A. Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I

B. Both Statement I and Statement II are correct, and Statement II is not the correct explanation for Statement

C. Statement I is correct, but Statement II is incorrect

D. Statement I is incorrect, but Statement II is correct

2. Which of the following laws or initiatives in India focuses on organized crime?

1. MCOCA (Maharashtra Control of Organised Crime Act)

2. PMLA (Prevention of Money Laundering Act)

3. NDPS Act (Narcotic Drugs and Psychotropic Substances Act)

4. Wildlife Protection Act 1972.

Select the correct answer using the code given below:

A. Only one

B. Only two

C. Only three

D. All four

3. What was the main objective of the Operation Green Hunt initiative?

A. Training rural youth in skill development

B. Large-scale deployment of security forces in Naxal-affected areas

C. Promoting financial inclusion in tribal regions

D. Building educational infrastructure in LWE-affected districts

4. With reference to drug trafficking in India, which of the following statements is/are correct?

1. India shares porous borders with several countries, including Myanmar and Pakistan, making it a key transit point for drug trafficking.
2. Cannabis is not a major drug trafficking concern in India, with methamphetamines and heroin being the primary substances trafficked.

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. A	2. D	3. B	4. A

Mains Question:

1. Discuss the role of the National Investigation Agency (NIA) in strengthening India's internal security. What are its limitations, and how can it be strengthened to counter emerging national security threats?

(250 words, 15 marks)

2. Discuss the various laws and initiatives in India aimed at combating organized crime. How effective are these measures in addressing the multifaceted nature of organized crime?

(Answer in 250 words)

3. Analyze the effectiveness of government initiatives in tackling LWE and suggest measures to address its socio-economic and political roots.

(Answer in 150 words)

4. Drug trafficking poses a severe challenge to national security, public health, and economic stability in India. Discuss the factors contributing to its prevalence and suggest measures to combat this growing menace.

(250 words, 15 marks)





BUILDING A HEALTHIER NATION

WHY IN THE NEWS?

India's progress in building a healthier nation has gained attention due to significant advancements in healthcare access, equity, and outcomes. Over the past decade, the country has introduced transformative policies reflecting a strong commitment to Universal Health Coverage. A major highlight in this journey is the **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY)**, a flagship initiative that continues to play a pivotal role in reshaping India's healthcare landscape.



CONSTITUTIONAL PROVISIONS RELATED TO THE HEALTH:

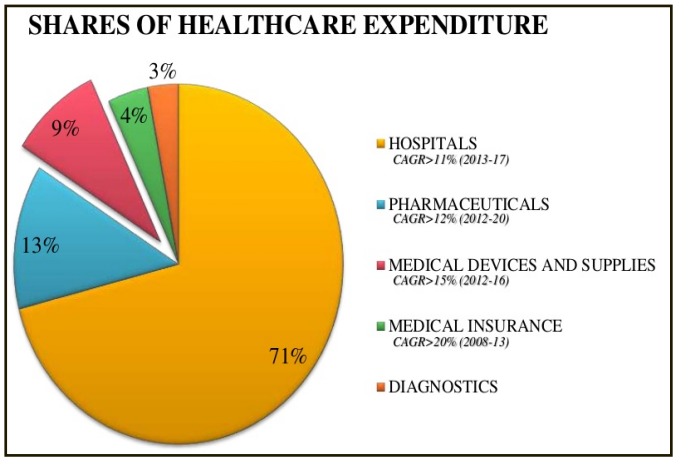
Provisions	Description	Context for Health
Article 38	The state is responsible for creating a social order that promotes the welfare of the people.	Framework for health and welfare-related policies, ensuring the welfare of people, including health, is prioritized.
Article 39(e)	The state is responsible for protecting the health and strength of workers, ensuring children's health.	Ensures workers' health and children's well-being by providing adequate resources for healthy development.
Article 41	The state is responsible for providing public assistance to the sick, disabled, and elderly.	Focuses on providing a safety net for the sick, disabled, and elderly, promoting social security for vulnerable populations.
Article 42	The state is responsible for providing maternity benefits and ensuring humane working conditions.	Aims to improve women's health, particularly during maternity, and ensure just working conditions.
Article 47	The state is responsible for improving public health, raising standards of living, and regulating harmful substances.	Directly mandates the government to focus on public health, nutrition, and prohibit harmful substances like drugs.

Article 48A	The state is responsible for ensuring a pollution-free environment for good health.	Links environmental protection with public health, ensuring a healthy environment for citizens.
Union List (List I)	Central government's role in regulating national health services, medical education, health research, pharmaceuticals, and managing health emergencies.	Union government has authority over national-level health services and emergency health management.
State List (List II)	State government's role in managing public health services, including vaccination, maternal health, and disease control within their jurisdiction.	States are responsible for managing local healthcare services, including disease control and maternal health.
Concurrent List (List III)	Shared responsibility between the Union and State governments for regulating public health issues, such as narcotics control, disease prevention, and health insurance.	Both Union and State governments collaborate on health issues like disease prevention and public health regulation.

KEY ACHIEVEMENTS OF THE GOVERNMENT IN HEALTHCARE

Area	Achievement	Data/Details
Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (ABPM-JAY)	– Health coverage of ₹5 lakh per family for secondary and tertiary care across 1,961 procedures in 27 specialties.	– **36.28 crore Ayushman Cards** issued. – Women account for **49% of cards** and **50% of admissions**. – **30,932 hospitals** empaneled.
Digital Health Infrastructure (ABHA)	– Facilitates access and sharing of digital health records. – Bridges gaps in the healthcare ecosystem through digital highways.	– **71.81 crore ABHA numbers** generated. – **46.53 crore health records** linked. – **3.55 lakh health facilities** and **5.38 lakh healthcare professionals** registered. – **PMNDP Portal**, launched on 5th May 2022, integrates dialysis centers under NHM with ABHA ID for portability.

National Health Mission (NHM)	– Strengthens healthcare at district and community levels.	– **753 NCD clinics** at district level and **6,238 NCD clinics** at CHC level. – **220 Cardiac Care Units (CCUs)** and **356 Day Care Cancer Centres** established.
Mission Indradhanush	– Expanded immunization for children and pregnant women in low-coverage areas. – Provides protection against 11 preventable diseases.	– Vaccinated **5.46 crore children** and **1.32 crore pregnant women** in all phases.
Improvement in Health Indicators	– Reduction in mortality rates and fertility rates due to targeted interventions.	– **MMR** reduced from **103 (2017-2019)** to **97 (2018-2020)**. – **IMR** reduced from **32 (2018)** to **28 (2020)**. – **TFR** reduced from **2.2 (2015-2016)** to **2.0 (2019-2021)**.
National Family Health Survey (NFHS-6)	– Conducts large-scale surveys to monitor health indicators across districts.	– Pre-test conducted in **June-July 2022**; main survey fieldwork in progress. – Covers **731 districts** with **6.77 lakh households**. – Fieldwork completed in **20 States/UTs**, ongoing in 15 others.
Tobacco-Free Youth Campaign	– Created awareness on the harmful effects of tobacco, focusing on youth and rural areas.	– Launched on **31st May 2023** (World No Tobacco Day). – **60-day campaign** conducted across all States/UTs from **May-July 2023**.
Consumer-Centric Policies	– Data-driven and regularly monitored policies ensure inclusivity and sustainability.	– Commitment to achieving Universal Health Coverage through evidence-based strategies.



PERSISTENT CHALLENGES IN HEALTHCARE

1. **Doctor-to-Population Ratio**: The World Health Organization (WHO) recommends a doctor-to-population ratio 1:1,000. India has a ratio of 1:1,511 (as of 2023), indicating a significant shortfall in healthcare providers, especially in rural areas.
2. **Gender Gap in Access to Healthcare**: Women account for only 49% of Ayushman Bharat Cardholders despite being 50% of the population, reflecting gender disparities in accessing healthcare services.
3. **Urban-Rural Divide in Healthcare Services**: 70% of India's population resides in rural areas, but 60% of hospitals and healthcare infrastructure are concentrated in urban areas. Rural India faces a shortage of 83% of specialist doctors at Community Health Centers (CHCs), according to the Rural Health Statistics (2022).
4. **Regional Divide (Northeast and Remote Areas)**: Northeastern and remote states have fewer medical colleges and specialized hospitals compared to central and southern states. For example, Arunachal Pradesh has only **1 medical college** for a population of over 1.3 million.
5. **Caste-Based Inequality in Healthcare Access**: Marginalized communities, such as Dalits, report higher rates of exclusion from healthcare services. The National Family Health Survey-5 (NFHS-5) highlighted that only 28% of Dalit households have access to private health care compared to 50% of upper-caste households.
6. **Slow Growth in Public Health Infrastructure**: Public health expenditure in India remains low at 1.28% of GDP (2022-2023), far below the global average of 6%. India has only 1 government hospital bed per 1,844 people, compared to the global average of 1:550.
7. **High Out-of-Pocket Expenditure (OOPE)**: OOPE accounts for 48.8% of total health expenditure in India, as per the National Health Accounts (NHA) 2022. This disproportionately affects low-income families, pushing an estimated 63 million people into poverty annually due to healthcare costs.
8. **Lack of Health Insurance Coverage**: Despite schemes like Ayushman Bharat, only 41.1% of Indian households have at least one member with health insurance, as per NFHS-5. Informal sector workers and rural populations often remain uninsured, leading to higher financial vulnerabilities.
9. **Overemphasis on Secondary and Tertiary Care**: A disproportionate focus on hospitals and high-end treatments often overshadows the need for robust primary healthcare systems. Only 3% of the health budget is allocated to preventive and promotive health services, while secondary and tertiary care dominates expenditures.
10. **Privatization of Medical Education**: The high cost of private medical education limits access for economically weaker sections. Over 60% of medical colleges in India are private, creating an uneven distribution of healthcare professionals and increasing healthcare costs.
11. **Curative Treatment Over Preventive Services**: India's healthcare system primarily focuses on curative treatments rather than preventive care. For example, **non-communicable diseases (NCDs)** account for over **60% of deaths**, yet there is limited emphasis on preventive strategies like lifestyle interventions and early screenings.

WAY FORWARD

1. **Universal Health Coverage (UHC)**: As envisioned in the National Health Policy, prioritize achieving UHC by ensuring equitable access to quality healthcare for all citizens, irrespective of socioeconomic or regional disparities.

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2. **Strengthening Primary Healthcare**: Focus on primary healthcare as the backbone of the health system, particularly to address the needs of rural populations, which constitute over 60% of India's population.

3. **Gradual Improvement in Health Infrastructure**: Invest in improving health infrastructure incrementally, including building medical colleges, increasing hospital capacities, and enhancing diagnostic and treatment facilities in underserved regions.

4. **Promotion of Alternative Medicine Systems**: Promote traditional systems of medicine like AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) for a holistic approach to healthcare.

5. **Enhanced Focus on Women and Children**: Strengthen programs like ASHA (Accredited Social Health Activists) workers to ensure better access to healthcare for women and children in remote areas.

6. **Emphasis on Preventive Care**: Shift the focus from curative treatments to preventive and promotive healthcare to address the growing burden of non-communicable diseases (NCDs).

7. **Inclusive Healthcare for Marginalized Groups**: Adopt an inclusive approach as recommended by various committees, ensuring healthcare access for tribal communities, Dalits, and economically weaker sections.

8. **Leverage Technology and Data**: Utilize digital platforms like ABHA and telemedicine to bridge the urban-rural healthcare divide.

9. **Increase Public Health Expenditure**: Raise public health expenditure to at least **2.5% of GDP** as recommended by the National Health Policy to strengthen the healthcare system sustainably.

10. **Collaboration with the Private Sector**: Build partnerships with private healthcare providers to expand access and reduce the burden on public healthcare infrastructure. Regulate and subsidize private healthcare services to ensure affordability and transparency.

CONCLUSION

In recent years, several initiatives have improved the status of the health sector in India. However, the need is to address the persistent challenges and make the health sector affordable, accessible, and inclusive to all people.

LIGHTHOUSE TOURISM IN INDIA

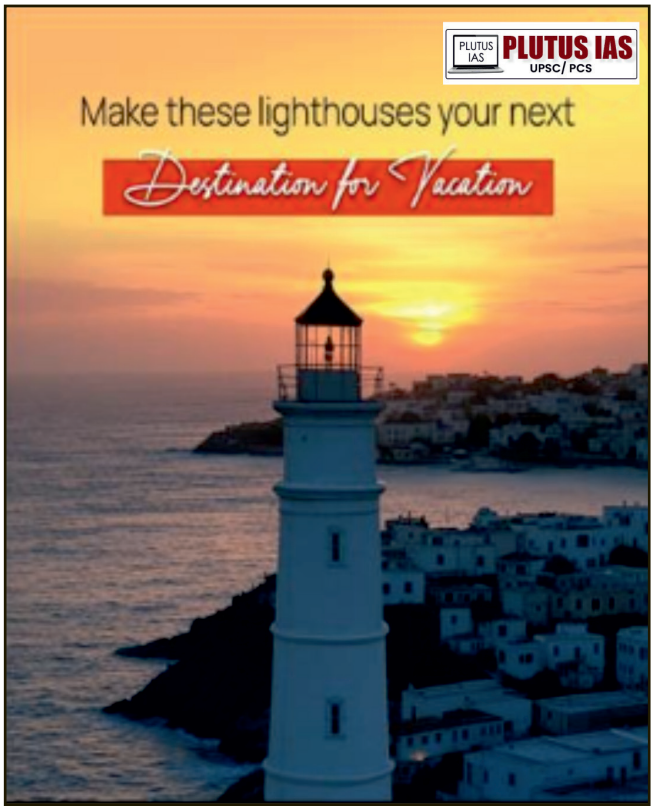
WHY IN THE NEWS?

India, with a coastline spanning over 7,500 kilometers and home to 204 lighthouses, is now witnessing a transformative initiative by the Government of India. Traditionally serving as navigational aids for seafarers, these iconic structures are being reimagined as tourism destinations under the government's developmental vision. This initiative seeks to preserve the historical and architectural significance of lighthouses while unlocking their potential for economic growth and community empowerment.



WHAT IS LIGHTHOUSE TOURISM?

Lighthouse tourism involves transforming lighthouses and their surrounding areas into vibrant tourist attractions. Often situated in scenic coastal or island settings, these structures uniquely blend natural beauty, maritime history, and recreational activities.

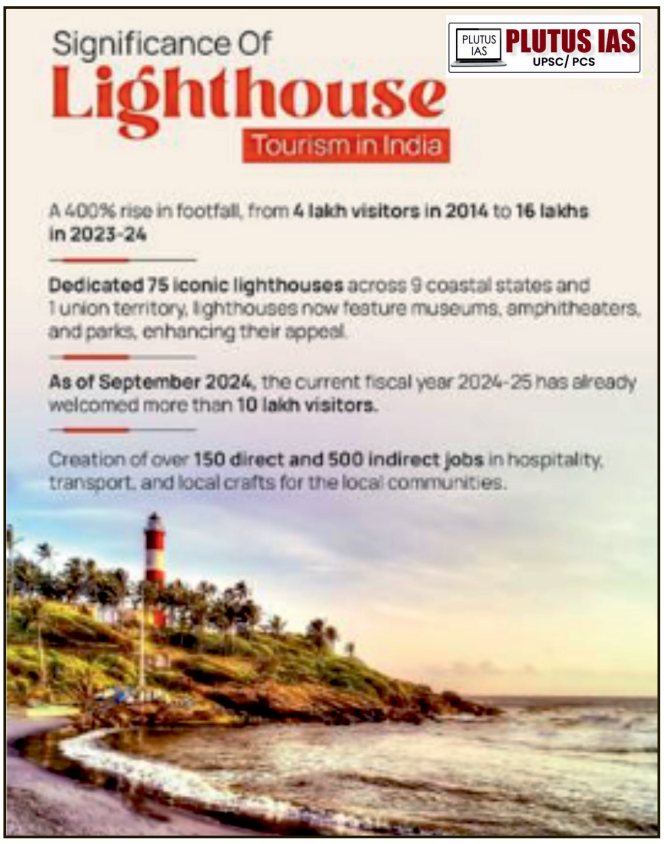


The Central Government is promoting lighthouse tourism as part of its Maritime India Vision (MIV) 2030 and Amrit Kaal Vision 2047 to preserve India's cultural heritage and maritime legacy. This initiative seeks to boost India's tourism potential, create employment opportunities, and foster local economic growth.

SIGNIFICANCE OF LIGHTHOUSE TOURISM

Lighthouse tourism plays a pivotal role in India's development, contributing to various domains through its multidimensional impact:

1. **Job Creation**: The initiative has led to the creation of **150 direct and 500 indirect employment opportunities** in sectors like hospitality, transportation, tour operations, and local crafts, boosting livelihoods in surrounding areas.
2. **Economic Boost**: Increased tourist footfall has directly benefited local businesses such as **hotels, restaurants, shops, and artisans**, fostering economic activity in coastal regions.
3. **Preservation of Heritage**: With a ₹60 crore investment, 75 iconic lighthouses have been developed with modern amenities like **museums, amphitheaters, and children's parks**, ensuring the conservation of India's maritime history while making it accessible to the public.



4. **Tourist Attraction**: In **2023-24**, these lighthouses attracted **16 lakh visitors**, a significant rise from just **4 lakh visitors in 2014**, marking a **400% increase** in footfall. In **2024-25**, over **10 lakh tourists** visited by September, including more than **5 lakh between April and June 2024**, showcasing their growing popularity.
5. **Community Empowerment**: Tourism has empowered local communities by creating opportunities for skill development and enhancing participation in tourism-related activities, uplifting livelihoods.
6. **Global Appeal**: The initiative under **Maritime India Vision 2030** and **Amrit Kaal Vision 2047** aligns with India's vision to showcase its maritime and cultural legacy, drawing attention from both domestic and international tourists.
7. **Sustainable Tourism**: By integrating eco-friendly practices and promoting heritage conservation, the initiative ensures tourism development aligns with environmental and cultural preservation.

8. **Enhanced Infrastructure**: The development of tourist-friendly facilities has transformed lighthouses into hubs for **history, adventure, and leisure**, making them unique travel destinations that appeal to diverse demographics.

GOVERNMENT INITIATIVES AND SCHEMES TO PROMOTE LIGHTHOUSE TOURISM IN INDIA

Initiative/Scheme	Details
Indian Lighthouse Festival	– The 1st **Bharatiya Prakash Stambh Utsav** was inaugurated on **23rd September 2023** at Fort Aguada, Goa by Union Minister Shri Sarbananda Sonowal and Goa CM Shri Pramod Sawant.
	– The 2nd Festival was held in Odisha, where two lighthouses at Chaumuck (Balasore) and Dhamra (Bhadrak) were dedicated, promoting maritime heritage and tourism.
Stakeholders Meeting	– A stakeholders' meet chaired by Shri Sarbananda Sonowal in **Kerala (July 2024)** strategized the promotion of lighthouse tourism and revitalization of these structures as vibrant tourist destinations.
Sagarmala Programme	– A national program leveraging India's coastline and waterways to promote economic development through projects like **coastal circuits**, **cruise tourism infrastructure**, and **lighthouse development**.
Swadesh Darshan Scheme	– Provides financial assistance for developing tourism infrastructure in **state and UT-administered areas**. Includes the **Coastal Circuit** as a thematic focus and a **Challenge-Based Destination Development** sub-scheme.
Incredible India Campaign	– A flagship initiative under the Ministry of Tourism to promote India as a global tourist destination, highlighting its diverse heritage, including coastal and maritime attractions like lighthouses.
National Heritage Complex Development	– Focuses on preserving and promoting heritage sites, integrating lighthouses into broader national efforts to conserve cultural landmarks.
National Strategy for Sustainable Tourism	– Aims at sustainable tourism by emphasizing **environmental sustainability**, **resource efficiency**, and long-term management practices for tourism destinations, including lighthouses.
75 Lighthouses Development	– **75 iconic lighthouses** were developed with amenities such as **museums, amphitheaters, and parks** in **February 2024** with a **₹60 crore investment**, underlining their cultural and recreational significance.
Future National Framework	– Plans are underway to establish a **national framework** aimed at empowering coastal communities and promoting sustainable development around lighthouses.

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THE POTENTIAL OF LIGHTHOUSE TOURISM IN INDIA:

- **Scenic Locations**: Positioned along India's vast coastline and remote islands, many lighthouses provide stunning panoramic sea views, making them ideal for nature enthusiasts and photographers.
- **Historical Significance**: Some lighthouses date back centuries and are situated near UNESCO World Heritage Sites such as Mahabalipuram in Tamil Nadu, enhancing their cultural and architectural appeal.
- **Adventure and Recreation**: These sites can host activities such as trekking, boating, and water sports, catering to adventure seekers and families alike.
- **Economic Growth**: Developing lighthouse tourism creates employment opportunities in hospitality, transportation, and local handicrafts, fostering regional economic development.
- **Government Initiative**: Recognizing their potential, the government has identified lighthouse tourism as a priority area under its Maritime India Vision (MIV) 2030 and Amrit Kaal Vision 2047.
- **Modern Facilities**: In February 2024, PM Narendra Modi inaugurated 75 lighthouses equipped with tourist facilities, including museums, amphitheaters, children's parks, and more, with a ₹60 crore investment.
- **Tourist Footfall**: The dedicated lighthouses attracted 16 lakh visitors in 2023-24, a significant rise from 4 lakh visitors in 2014, reflecting a 400% increase. By September 2024, over 10 lakh tourists had already visited in the current fiscal year.
- **Sustainable Tourism**: The initiative promotes sustainable tourism practices by preserving the historical and ecological integrity of lighthouses while enhancing their appeal as global travel destinations.

HURDLES LIMITING THE REALIZATION OF LIGHT-HOUSE TOURISM POTENTIAL IN INDIA

- **Infrastructure Limitations:** Many lighthouses are in remote areas with poor connectivity, like Kochi and Sundarbans, limiting access and footfall. This reduces tourism potential and revenue generation.
- **Environmental Concerns:** Tourism development can negatively impact fragile ecosystems, as seen at Alappuzha Lighthouse in Kerala. The surrounding backwaters face ecological threats from infrastructure.
- **Lack of Awareness:** Lighthouse tourism gained momentum after the 2023 Indian Lighthouse Festival, showing prior low awareness. This limits tourist interest and growth potential.
- **Regulatory Issues:** Strict security measures at sites like Mangalore Lighthouse restrict public access. These regulations hinder tourist engagement and development.
- **Coastal Community Involvement:** In places like Goa, local communities weren't initially involved in tourism planning, limiting their benefits. Tourism revenue wasn't reinvested into community development.
- **Seasonal Tourism Impact:** Lighthouse tourism in coastal regions faces seasonal fluctuations, as seen in Odisha. Off-season declines affect profitability and operational sustainability.
- **Insufficient Skill Development:** Limited skill-building programs in Tamil Nadu prevent locals from benefiting from tourism growth. Lack of hospitality and guiding skills restricts job opportunities.
- **Private Sector Challenges:** High investment costs and risks deter private players, as in the Sundarbans. Developing tourism infrastructure in ecologically sensitive areas faces slow progress.
- **Heritage Conservation:** Balancing preservation with modern tourism at Kanyakumari Lighthouse is challenging. The need for new facilities conflicts with maintaining the structure's historical integrity.



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WAYS TO TAP THE POTENTIAL OF LIGHTHOUSE TOURISM IN INDIA

Strategy	Details
Sustainable Development	– Emphasis on **eco-friendly practices** to protect fragile coastal ecosystems and ensure the long-term viability of lighthouse tourism.
Integration with Coastal Circuits	– Lighthouses are integrated into **broader coastal tourism circuits** to enhance their appeal and connect them with other cultural and natural landmarks.
Awareness Campaigns	– Launching **digital initiatives** and campaigns to showcase lighthouse destinations, targeting both domestic and international audiences.
Skill Development	– Introducing **training programs** to equip local communities with skills for employment in **hospitality and tourism-related sectors**, fostering local economic growth.
Alignment with "Atmanirbhar Bharat"	– Aligning lighthouse tourism development with **Prime Minister Modi's "Atmanirbhar Bharat"** vision to foster self-reliant India, integrating maritime heritage into the nation's economic growth strategy.
Preservation of Maritime Biodiversity	– Focus on **preserving the environment** surrounding lighthouses, protecting India's rich **maritime biodiversity** while promoting tourism.
Experiential and Off-the-Beaten-Path Travel	– Catering to the growing demand for **experiential tourism** by offering tourists the opportunity to engage with local cultures, enjoy scenic landscapes, and participate in activities around lighthouses.
Lighthouse Festivals and Community Engagement	– Organizing **Indian Lighthouse Festivals** and **Stakeholders Meetings** to bring together local communities, tourism operators, and government bodies, fostering a sense of ownership and pride while benefiting local economies.
MIV 2030 Integration	– Incorporating lighthouse tourism into the **Maritime India Vision 2030 (MIV 2030)** initiative, linking lighthouses with larger coastal tourism circuits to boost global appeal.

CONCLUSION

The government's ongoing efforts to develop lighthouse tourism are already yielding significant results, with millions of tourists visiting these iconic sites. By combining history, adventure, and natural beauty, lighthouses are becoming an integral part of India's tourism landscape. The focus on sustainable development, community engagement, and environmental preservation ensures that lighthouse tourism will continue to drive economic growth in India's coastal regions.

ENHANCING PUBLIC TRANSPORT: METROS IN CITIES DECONGESTING TRANSPORTATION

WHY IN THE NEWS?

Prime Minister Narendra Modi launched metro development projects worth over ₹12,200 crore in Delhi. Key highlights include the inauguration of a 13 km stretch of the Delhi-Ghaziabad-Meerut Namo

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Bharat Corridor to ease travel, a 2.8 km section of Delhi Metro Phase-IV benefiting West Delhi, and the foundation of the 26.5 km Rithala-Kundli section to strengthen Delhi-Haryana connectivity.



METRO SYSTEMS IN INDIA: KEY STATISTICS

1. **Operational Network:** Covers over 1,000 km across 11 states and 23 cities.
2. **Passenger Impact:** Serves over 1 crore passengers daily.
3. **Global Ranking:** India has the 3rd largest operational metro network in the world (as of 2022). Surpassed Japan in metro rail projects in 2022, on track to become the 2nd largest metro network globally.
4. **Historical Milestones:**
   - **1984:** Kolkata Metro launched India's first metro line (3.4 km).
   - **1995:** Delhi Metro Rail Corporation (DMRC) was established.
   - **2002:** DMRC opened its first corridor (Shahdara to Tis Hazari).
   - **2011:** Namma Metro (Bengaluru) began operations.
   - **2017:** Chennai Metro inaugurated its first underground section (Green Line).
   - **2020:** Phase 1 of Kochi Metro completed (Thykoodam-Petta stretch).



ADVANCEMENTS IN METRO SYSTEMS IN INDIA

1. **Under-Water Metro:** Inaugurated in 2024, India's first underwater metro tunnel in Kolkata runs beneath the Hooghly River (Esplanade-Howrah Maidan section), showcasing remarkable engineering achievements.
2. **Driverless Metro:** Launched on December 28, 2020, on Delhi Metro's Magenta Line, this innovation marked India's entry into fully automated metro operations, setting new standards in urban mobility.
3. **Kochi Water Metro:** Introduced in December 2021, Kerala's Kochi became the first city in India to operate a water metro, connecting 10 islands with electric hybrid boats for eco-friendly and seamless transportation.
4. **Metro Neo Project:** A cost-effective and international-standard metro system, set to debut in Nashik, Maharashtra, under Maha Metro. This innovative initiative offers an affordable alternative for smaller cities.
5. **Approval of New Metro Rail Projects**: Expansion plans for metro networks in Bengaluru (44 km), Chennai, and Pune (5.5 km) to enhance urban connectivity and reduce traffic congestion in key cities.
6. **Integrated Mobility Solutions:** Intelligent Transport Systems (ITS) are being developed for real-time updates, traffic management, and seamless integration of metro, buses, and last-mile connectivity via smart digital platforms.

IMPORTANCE OF METRO RAIL SYSTEMS IN CITIES

1. **Reduce Pollution:** Metro systems emit 60-70% less CO_2 per passenger-kilometer compared to private vehicles (CSE). Delhi Metro saves 2.5 lakh tons of CO_2 emissions annually (UNFCCC).
2. **Improve Transportation:** Delhi Metro carries over 60 lakh passengers daily (DMRC, 2023), with commuters saving an average of 45 minutes per trip due to reduced traffic (Ministry of Housing and Urban Affairs, 2022).
3. **Promote Economic Growth:** The World Bank estimates every $1 billion invested in metro systems creates 50,000-100,000 jobs. Metro connectivity has boosted commercial activity by 30% in hubs like Gurugram and Noida.
4. **Improve Property Values:** Properties within 500 meters of metro stations see a 20-25% value increase (Knight Frank India). Mumbai's Metro Line 1 raised real estate prices by 10-20% in 3 years.
5. **Be Affordable:** Metro fares are 50-60% cheaper than private vehicle commuting. Delhi Metro offers passes reducing per-trip costs to ₹10-15 (DMRC, 2023).
6. **Enhance Urban Mobility:** India's metro network spans 1,000 km across 20 cities (Ministry of Housing and Urban Affairs, 2023). Kolkata's metro expansion reduced travel time by 20% (World Bank, 2022).
7. **Reduce Road Accidents:** Cities with metro systems report a 25% reduction in road accidents (NCRB). Chennai Metro's adoption reduced traffic by 15-20%, enhancing road safety (Chennai Metro, 2023).
8. **Support Sustainable Urbanization:** India ranks 3rd globally in metro infrastructure expansion (UITP), aligning with the UN's Sustainable Development Goal 11 for sustainable urban growth.

ISSUES WITH THE METRO RAIL NETWORK IN INDIA

1. **High Initial Cost and Financial Viability:** Metro systems require large investments, with projects like Mumbai's Metro Line 5 costing ₹8,416 crore.
2. **Low Ridership and Underutilization:** Many metro systems operate below 50% of their projected ridership. For instance, Delhi Metro's daily ridership of 60 lakh is much lower than the 80 lakh forecasted.
3. **Poor Planning and Technical Challenges:** Delays in metro projects are common, with cities like Chennai and Kolkata facing missed timelines. Technical issues, such as system failures in Chennai Metro, exacerbate operational disruptions.
4. **Impact on Existing Road Infrastructure:** Metro construction often disrupts road networks, leading to traffic congestion. For example, Delhi Metro Phase-IV caused significant delays, affecting commuters reliant on road transport.
5. **Limited Focus on Smaller Cities:** As of 2023, India has 986 km of metro rail under construction in major cities, neglecting urban mobility needs in smaller areas.
6. **Safety and Public Awareness Concerns:** While metro systems reduce road accidents by 25%, safety concerns persist, particularly for women.
7. **Cost Variations and Land Acquisition Issues:** Metro costs vary significantly due to land acquisition challenges. For example, Mumbai's metro corridors cost ₹12,721 crore, while cities like Lucknow and Kochi have lower costs due to easier land access.
8. **Choice Between Elevated and Underground Routes:** The decision to build elevated or underground corridors involves complex trade-offs. In Delhi, the underground metro costs 1.5 to 2 times more than elevated sections, making financial and spatial planning challenging.

WAY FORWARD FOR METRO RAIL SYSTEMS IN INDIA

1. **Public-Private Partnership (PPP):** Emulating the success of the railway network, metro projects should increasingly adopt public-private partnerships (PPP) to share costs and risks, improving operational efficiency and ensuring financial sustainability.

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2. **Generating Revenue Through Space Utilization:** Metro operators should explore additional revenue streams by effectively utilizing station spaces for retail, advertising, and commercial leasing.

3. **Taking Preventive Measures for Safety:** Enhanced safety measures, including CCTV surveillance, better lighting, and emergency response systems, are crucial to prevent accidents, particularly for women passengers.

4. **Long-term Planning:** Metro projects should focus on long-term planning, considering urban growth over the next 10-20 years. Forecasting population growth and transportation demand will ensure that metro systems evolve in line with the needs of expanding cities.

5. **Feasible Land Acquisition Costs:** Efforts must be made to streamline land acquisition processes to make them more predictable and cost-effective.

6. **Exploring Alternative Transportation Systems:** Exploring alternatives like hyperloop, electric buses, and cable cars can complement metro systems in densely populated cities. These solutions can reduce traffic congestion and improve overall urban mobility.

7. **Expanding to Tier-3 and Tier-4 Cities:** To ensure balanced urban growth, metro projects should focus on Tier-3 and Tier-4 cities, where public transport options are limited.

8. **Dedicated Metro Division in Urban Ministry:** Establishing a dedicated metro division within the Ministry of Urban Affairs can expedite project clearance, streamline approvals, and ensure more effective implementation of metro systems across the country.

9. **Prioritizing Elevated Metro Construction:** To avoid environmental degradation and minimize disruption to existing infrastructure, cities should prioritize elevated metro corridors over underground ones. Elevated metro systems are faster to construct, less disruptive, and more cost-effective.

CONCLUSION

India's metro network is set to become a key part of urban transportation as the country faces rapid urbanization. With over 600 million people expected to live in cities by 2030, the need for efficient, sustainable transport systems is crucial. The government's Vision 2025 plan and investments from the National Infrastructure Pipeline (NIP) focus on expanding metro networks and Mass Rapid Transit Systems (MRTS), positioning metros as a vital solution to India's urban mobility challenges.

Svamitva Scheme: A Landmark Initiative for Rural Development

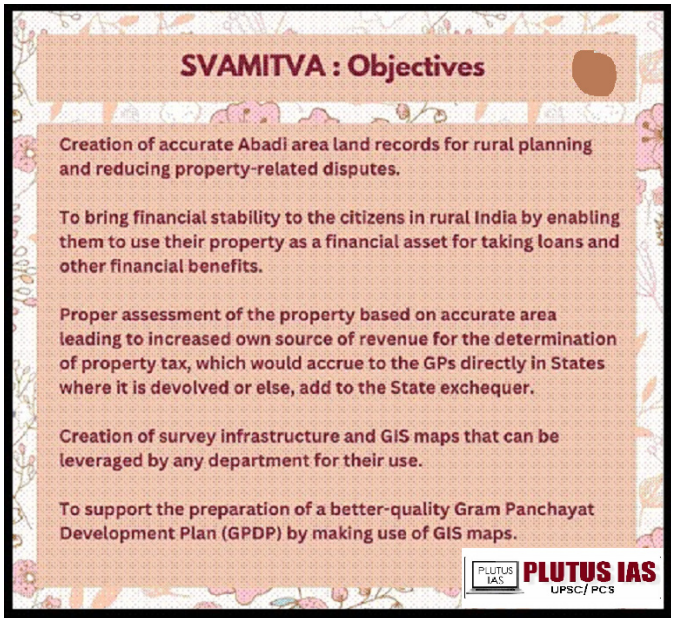
WHY IN THE NEWS?

Prime Minister Narendra Modi's distribution of over 65 lakh property cards under the SVAMITVA Scheme is making headlines as a major step towards rural empowerment in India. This milestone, set through a video conference, marks the issuance of property cards to residents in over 50,000 villages across 10 states and two Union Territories.m The SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas) Scheme, launched in April 2020, aims to provide legal ownership documents to rural property owners. The initiative uses advanced drone and GIS technology to map land and grant a 'Record of Rights' to property owners. With nearly 2.25 crore property cards set to be issued, including 65 lakh in this single distribution, the scheme is significantly formalizing land ownership in rural India.

WHAT IS THE SVAMITVA SCHEME?

The SVAMITVA Scheme (Survey of Villages and Mapping with Improvised Technology in Village Areas) is a central government initiative designed to provide property rights to rural households in India. Launched by the Prime Minister of India on April 24, 2021, the scheme leverages advanced technologies, including drone surveying, to map land parcels in rural areas and create accurate property records. The SVAMITVA Scheme was introduced to address the longstanding challenge of incomplete survey and settlement of rural land,

particularly in village Abadi (inhabited) areas. For decades, many rural properties lacked formal documentation, preventing property owners from accessing institutional credit or using their land as a financial asset. This gap in land records not only left rural landowners vulnerable but also hindered economic development, limiting their access to financial assistance, loans, and opportunities for growth.



ACHIEVEMENTS OF THE SCHEME:

1. **Property Card Distribution:** As of December 27, 2024, 57 lakh property cards have been distributed across 46,351 villages in 10 states (Chhattisgarh, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra, Mizoram, Odisha, Punjab, Rajasthan, Uttar Pradesh) and 2 Union Territories (Jammu & Kashmir and Ladakh).
2. **Widespread Adoption:** The scheme aims to provide a 'Record of Rights' for rural household owners, and it has been onboarded by 31 states and union territories (UTs).
3. **Drone Surveys:** Drone surveys have been completed in 3.17 lakh villages, including the UTs of Lakshadweep, Ladakh, Delhi, Dadra & Nagar Haveli, and Daman & Diu, as well as states like Madhya Pradesh, Uttar Pradesh, and Chhattisgarh.
4. **Property Cards Generated:** Over 2.19 crore property cards have been prepared for nearly 1.49 lakh villages. States like Haryana, Uttarakhand, Puducherry, Tripura, Andaman and Nicobar Islands, and Goa have already generated property cards for all their inhabited villages.
5. **Centralized Monitoring:** A centralized online dashboard tracks the real-time progress of the scheme's implementation, making it easier for stakeholders to monitor its advancement.
6. **Digital Access:** Property cards are now available digitally via the DigiLocker app, enabling beneficiaries to view and download them seamlessly.
7. **Advanced Survey Technology:** The scheme employs survey-grade drones and the Continuous Operating Referencing System (CORS) network, producing high-resolution maps quickly and accurately, significantly improving rural land demarcation.

KEY FEATURES OF THE SVAMITVA SCHEME:

1. **Property Records for Rural Households:** It aims to provide clear and accurate property records to households in rural areas, formalizing their land ownership.
2. **Drone Technology for Mapping:** The scheme uses drone technology to map land parcels accurately, ensuring precision in land record creation.
3. **Legal Ownership Cards (Property Cards):** It issues legal property cards or title deeds to the owners, which serve as proof of ownership.
4. **Reduction of Property Disputes:** By providing legal clarity on ownership, the scheme helps in minimizing land-related disputes.
5. **Monetization of Property:** Rural households can use their land as a financial asset, enabling them to access credit and engage in economic activities.
6. **Access to Bank Loans:** With legal ownership documents, rural citizens can approach financial institutions for loans using their property as collateral.

7. **Improved Rural Planning:** Accurate land records aid in better rural planning and development by government bodies.

8. **Collaboration Among Stakeholders:** The scheme involves collaboration between various bodies, such as the Ministry of Panchayati Raj, state departments, and the Survey of India for effective implementation.

WHAT IS THE SIGNIFICANCE OF THE SVAMITVA SCHEME?

1. **Formalizing Property Ownership:** Aims to provide legal property titles to 1 crore+ rural households. Around 25 lakh property cards have been issued by 2024.

2. **Access to Credit:** Property cards enable rural families to access bank loans by using land as collateral, boosting financial inclusion.

3. **Reducing Land Disputes:** The scheme reduces disputes by creating accurate land records using drones and GIS, resolving 30-40% of land disputes in pilot regions.

4. **Infrastructure & Planning:** Provides detailed land maps for better rural governance and infrastructure development.

5. **Gender Equality:** Supports women's land ownership rights, helping increase the 13% land ownership by women in rural India.

6. **Economic Empowerment:** Enables investment in agriculture and businesses, unlocking the economic value of rural land.

7. **Revenue Generation:** Accurate land records assist in better tax collection, improving government revenues.

WHAT ARE THE CHALLENGES ASSOCIATED WITH THE SVAMITVA SCHEME?

1. **Difficult Terrain:** Remote areas with poor infrastructure make drone mapping and data collection challenging.

2. **Infrastructure Gaps:** 60% of rural India lacks basic infrastructure like roads, electricity, and internet, slowing down implementation.

3. **Community Resistance:** Rural populations' reluctance to participate in surveys due to lack of awareness or fear of losing land rights.

4. **Ownership Disputes:** Family disputes over land and unclear inheritance complicate accurate ownership identification, especially in states like Uttar Pradesh.

5. **Data Accuracy:** Ensuring accurate validation of land data, particularly in regions with outdated records.

6. **Implementation Delays:** Phased rollout across 6.62 lakh villages facing delays in certain regions, especially in states like Madhya Pradesh.

7. **Capacity Building:** Limited training on drones and GIS for local officials, especially in remote areas, hindering effective implementation.

8. **Legal Challenges:** Varying state-specific land laws and the need for legal coordination among agencies create discrepancies.

WAY FORWARD:

1. **Infrastructure Development:** Expediting the improvement of rural infrastructure, such as internet connectivity, roads, and electricity, will enhance the effectiveness of the drone surveys and ensure smoother implementation across all villages.

2. **Awareness and Outreach:** Expanding awareness campaigns to educate rural populations about the benefits of the scheme and addressing concerns regarding land rights will foster greater participation and reduce resistance.

3. **Improved Training Programs:** Providing more extensive training on drone technology and GIS for local officials will ensure higher-quality land surveys and more accurate property records.

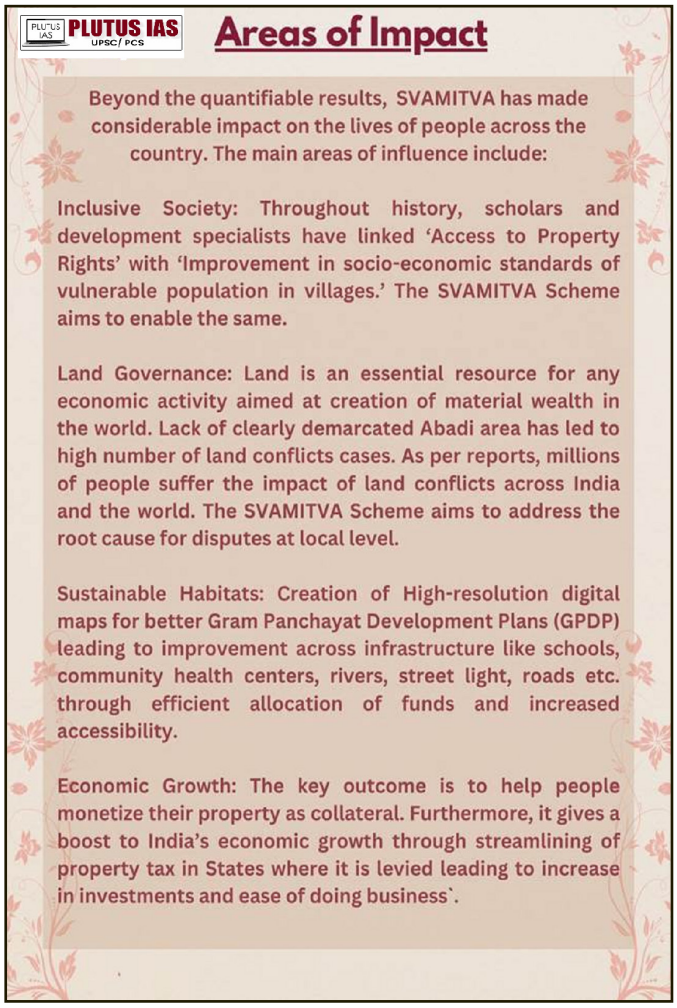
4. **Legal Reforms and Coordination:** Streamlining legal frameworks and coordinating with state governments to resolve discrepancies in land laws will help to smoothen the integration of land records and property titles.

5. **Addressing Disputes:** Developing a clear, efficient process for resolving ownership

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disputes, especially those related to inheritance, will be essential in making the scheme truly beneficial for all.

6. **Gender Sensitization:** Ensuring that the scheme includes measures to address women's land rights and increase women's ownership of property is crucial for promoting gender equality in rural areas.



CONCLUSION

The SVAMITVA Scheme stands as a landmark initiative in India's rural development efforts. By providing legal recognition of land ownership and leveraging advanced technologies like drones and GIS, it is addressing long-standing issues related to rural land records. Though challenges remain, including infrastructure gaps, legal hurdles, and community resistance, the scheme has the potential to significantly improve the socio-economic conditions of rural India. By formalizing land ownership, reducing disputes, and unlocking financial opportunities, the scheme can pave the way for sustainable rural growth, economic empowerment, and improved governance.

Prelims Question:

1. Consider the following subjects:

1. Public health and sanitation
2. Hospitals and dispensaries
3. Medical Education

How many of the above subjects are mentioned in the Union List of the Seventh Schedule?

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

2. Which of the following are the advantages of the Lighthouse tourism?

1. Employment generation
2. Sustainable coastal tourism
3. Elimination of involvement of local communities.

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

4. Consider the following statements:

1. Delhi is the first city in India to operate a driverless metro system.
2. Mumbai is the first city in India to run a metro on water.
3. Kochi is the first city in India to feature an underwater tunnel for its metro system.

How many of the above-given statements are correct?

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

4. Which of the following technologies are used in the implementation of the SVAMITVA Scheme?

1. Drones
2. GIS Technology
3. Satellite Mapping
4. GPS Technology

Select the correct answer using the code given below:

A. 1 and 2 only

B. 1 and 3 only

C. 1, 2, and 4 only

D. 1, 2, and 3 only

Answer

1. D	**2. A**	**3. A**	**4. A**

Mains question:

1. Assess the role of the National Medical Commission (NMC) Act of 2019 in promoting accessible and affordable health services in India.

(Answer in 250 words)

2. Discuss the potential and significance of light-house tourism in India. What measures have been taken by the government to tap into the potential of lighthouse tourism and enhance its contribution to the economy and sustainable development?

(Answer in 250 words)

3. Discuss the role of the metro network in driving urbanization and fostering economic growth in India.

(Answer in 150 words)

4. Discuss the significance of the SVAMITVA Scheme in promoting rural empowerment and economic growth in India. Highlight the key achievements, challenges, and the way forward for the successful implementation of the scheme.

(250 words, 15 marks)





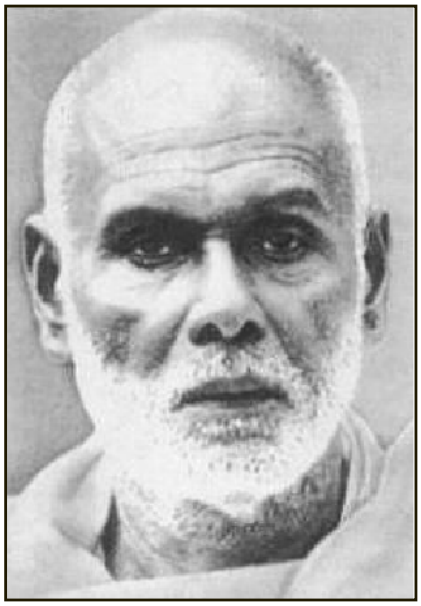
SHRI NARAYANA GURU: A SPIRITUAL ICON WHO REDEFINED SOCIAL BOUNDARIES

WHY IN THE NEWS?

The statement by Kerala Chief Minister Pinarayi Vijayan regarding Sree Narayana Guru has sparked controversy, particularly from the BJP, which accuses the CM of insulting Hinduism. During a speech at the annual pilgrimage to Sivagiri Mutt in Varkala, Vijayan stated that Narayana Guru had "reconstructed Sanatana Dharma" by challenging the caste-based system and promoting a secular, humanistic worldview. Vijayan argued that attempts to label Guru as a proponent of traditional Sanatana Dharma misrepresent his beliefs, stating that Guru's philosophy, exemplified by his famous dictum "One Caste, One Religion, One God," goes against the hierarchical caste system that defines Sanatana Dharma. The CM emphasized that Guru's teachings were modern, progressive, and secular, and any attempt to present him as a religious leader or adherent of the traditional system was an insult to his true legacy.

SHRI NARAYANA GURU:

1. **Born:** August 20, 1856, in Chempazhanthy, Kerala, into an Ezhava family, which was considered part of the lower caste in the caste-ridden society of Kerala.
2. **Early Education:** Studied under Chempazhanthi Mootha Pillai in the traditional gurukula system, where he was introduced to the basics of various disciplines.
3. **Further Studies:** At the age of 21, he studied Sanskrit, Vedas, and Upanishads under the guidance of Raman Pillai Asan, expanding his spiritual knowledge and intellectual capabilities.
4. **Spiritual Travels:** Traveled across Kerala and Tamil Nadu, meeting prominent reformers like Chattampi Swamikal. During this period, he also learned yoga and meditation from Ayyavu Swamikal, deepening his spiritual practices.
5. **Meditation & Enlightenment:** For eight years, he meditated in the Pillathadam cave at Maruthwamala, a secluded area surrounded by dense forests, where he attained spiritual enlightenment and clarity about the social inequalities of the time.
6. **Social Reformer:** This period marked his transformation into a social reformer. He began advocating for equality, education, and spiritual freedom for the oppressed castes, challenging the rigid caste system and the social injustices that prevailed in Kerala society.



SHRI NARAYANA GURU'S CONTRIBUTION:

1. Social Reforms:

- Fighting Caste Discrimination: Guru promoted equality for all, famously stating, "One caste, one religion, and one god for all." He led a movement against caste discrimination and untouchability in Kerala.
- Aruvippuram Pratishta (1888): By consecrating a Shiva idol at Aruvippuram, Guru challenged Brahminical traditions and broke caste barriers, marking a pivotal moment in social reform.
- Inclusive Temples: He built temples accessible to all castes, making spiritual spaces open to everyone, regardless of social status.
- Education for All: Guru focused on providing education to the marginalized, founding schools that emphasized enlightenment for the oppressed communities.

2. Freedom Movement:

- Influence on Gandhi: Guru's fight against untouchability inspired Mahatma Gandhi. Gandhi's efforts to eradicate untouchability were strongly influenced by Guru's ideas.
- Vaikom Satyagraha (1924): Guru's disciples played a key role in the Vaikom Satyagraha, demanding the right for lower castes to access temple roads, a successful struggle for social justice.
- Sivagiri Pilgrimage: Guru's legacy lives on through the Sivagiri Pilgrimage, a significant event that continues to promote social justice and spiritual harmony.

3. Literary Work:

- Philosophical and Spiritual Writings: Guru's major works, including "Atmopadesa Śatakam", convey profound spiritual teachings based on Advaita Vedanta and emphasize compassion, truth, and unity.
- Translations and Interpretations: He translated important works like the Thirukural and Ishavasya Upanishad, interpreting them in line with his vision of universal truth and spiritual equality.
- Timeless Influence: His writings continue to inspire thinkers and spiritual leaders, promoting peace, love, and unity across religious and social boundaries.

4. Other Contributions:

- All Religions Conference (1923): Guru hosted India's first interfaith conference, advocating for religious harmony and peaceful coexistence during a time of increasing communal tensions.
- Promotion of Industrialization: He supported industrial and agricultural growth, emphasizing the importance of development for social progress.
- Inclusive Spirituality: Guru initiated followers from all religions, emphasizing that the truth of spirituality transcends religious barriers.

5. Legacy:

- SNDP Yogam: Founded by Guru in 1903, the Sree Narayana Dharma Paripalana Yogam remains a major organization advocating social equality and education.
- Statues and Memorials: Monuments and statues in his honour, such as the one in Kaithamukku, Thiruvananthapuram, continue to remind people of his contributions.
- Commemorative Stamps and Coins: Guru's legacy is celebrated with commemorative stamps and coins, including one issued by the Government of India and one by Sri Lanka.
- Cultural Impact: Films like Sree Narayana Guru and Yugapurushan have immortalized his life and teachings, spreading his message to future generations.

CONCLUSION

Kerala Chief Minister Pinarayi Vijayan's recent statement on Sree Narayana Guru has sparked controversy, with the BJP accusing him of insulting Hinduism. Vijayan emphasized that Guru's teachings, including his famous motto "One Caste, One Religion, One God," challenged the caste-based hierarchy of Sanatana Dharma, promoting a progressive, secular worldview. This perspective reflects Guru's legacy as a social reformer who advocated for equality, education, and spiritual freedom, breaking caste barriers and influencing India's freedom movement. His work continues to inspire movements for social justice, interfaith harmony, and inclusive spirituality, solidifying his status as a transformative figure in Indian history.

MAINS QUESTION: THE GLORIOUS HISTORY OF VADNAGAR

WHY IN THE NEWS?

Prime Minister Narendra Modi highlighted that Vadnagar in Gujarat has a glorious history spanning over 2500 years. He emphasized the unique efforts undertaken to preserve and protect this historically significant site.



VADNAGAR: KEY FACTS

Vadnagar is a town and municipality in the Mehsana district of Gujarat, India. Historically known as **Anartapura (the capital of Anarta) and Anandapura**, it holds immense historical significance. The Chinese traveler Xuanzang visited Vadnagar in 640 CE. Alexander Cunningham, the founder and first Director-General of the Archaeological Survey of India (ASI), identified Anandapura with Vadnagar. Notably, Vadnagar is also the birthplace of Narendra Modi, the current Prime Minister of India.

VADNAGAR: HISTORICAL OVERVIEW

Pre-Mauryan Period (ca. 800–320 BCE): Contemporary to the Late Vedic and pre-Buddhist Mahajanapadas.

Mauryan Period (ca. 320–185 BCE).

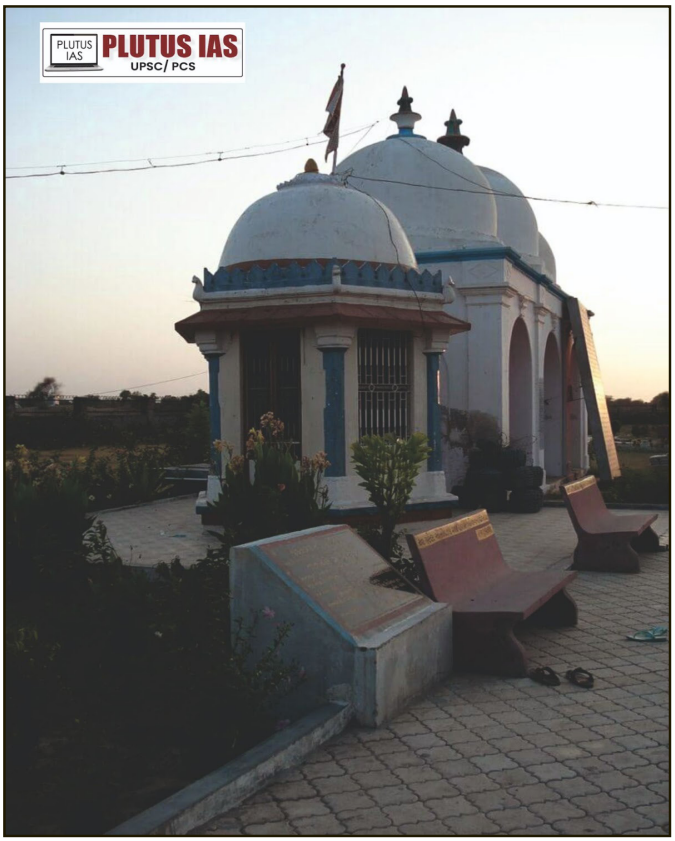
Indo-Greek Period:

1. **Indo-Scythian/Shaka-Kshatrapas Period** (ca. 35–415 CE): Linked to the descendants of Achaemenid provincial governors.
2. **Hindu-Solanki Period**
3. **Sultanate-Mughal to Gaekwad-British Colonial Rule** (ca. 318 years ago).
4. **Recent Period**
    - **Anartapura:** The town is frequently mentioned in ancient inscriptions and texts under its former names, Anartapura and Anandapura. It appears in the Mahabharata as part of the Anarta Kingdom.
    - **Chamatkarapura:** It is also referenced in the Tirtha Mahatmya section of the Nagara Khanda of the Skanda Purana, called Chamatkarapura.
    - **Junagadh rock inscription:** The Junagadh rock inscription (150 CE) of King Rudradaman I mentions Anartha as a region in northern Gujarat.
    - **Maitraka period (505–648 CE):** During the Maitraka period (505–648 CE), Brahmins in Anartapura/Anandapura were granted land grants. The Harsola copper plates (949 CE) of the Paramara king also record land grants in this region, further linking Vadnagar with the Nagar Brahmins.

CULTURAL SIGNIFICANCE OF VADNAGAR

1. **Buddhist Monastery (2nd–7th Century CE):** Excavations have uncovered a monastery with two votive stupas and a central courtyard surrounded by nine cells in a swastika-like layout, highlighting Vadnagar's role in Buddhist history.
2. **Jain Derasars:** Two Jain temples in Vadnagar emphasize its multireligious past and its significance in Jain culture.
3. **Hatkeshwar Mahadev Temple (15th Century):** This prominent Shiva temple is dedicated to Hatkeshwar Mahadev, the family deity of the Nagar Brahmins. It features Indo-Saracenic architecture, a towering shikhara, and a richly decorated exterior with carvings of Hindu deities, mythological scenes, celestial beings, and floral motifs.
4. **Sitala Mata Temple:** Known for its intricate carvings of celestial figures and depictions of

Krishna dancing with milkmaids (Rasmandala), this temple showcases exceptional craftsmanship.



5. **Kirti Toran:** A pair of 12th-century ornamental arches built from red and yellow sandstone, standing 40 feet tall, are iconic symbols of Gujarat's architectural heritage. Likely constructed to commemorate a victory, the toranas feature carvings of battles, hunting scenes, deities, floral motifs, and divine figures. Their design reflects the grandeur of Solanki-era architecture, with similarities to the Rudra Mahalaya Temple in Siddhpur.
6. **Narsinh Mehta's Chori:** A 12th-century torana associated with the renowned 15th-century Gujarati poet-saint Narsinh Mehta, celebrating his literary and spiritual contributions.
7. **Tana-Riri Garden and Shrine:** Dedicated to two sisters known for their exceptional singing skills.
8. **Pancham Mehta's Vav (Stepwell):** A historical stepwell showcasing traditional water management and architectural design.
9. **Janjanio Well and Gauri Kund:** Ancient water structures that underline Vadnagar's historical importance in sustaining urban life.
10. **Baithakji of Gusaiji:** A sacred place associated with the Pushti Marg sect.
11. **Ancient Library and Directional Stone:** Vestiges from the Solanki period, highlighting Vadnagar's scholarly and cultural prominence.
12. **Recognition and Legacy:** Vadnagar's historical and architectural significance has earned it a place on UNESCO's tentative list of World Heritage Sites (2022). Its rich cultural tapestry, featuring influences from Buddhism, Jainism, and Hinduism, and its architectural marvels make it a vital chapter in India's heritage narrative.

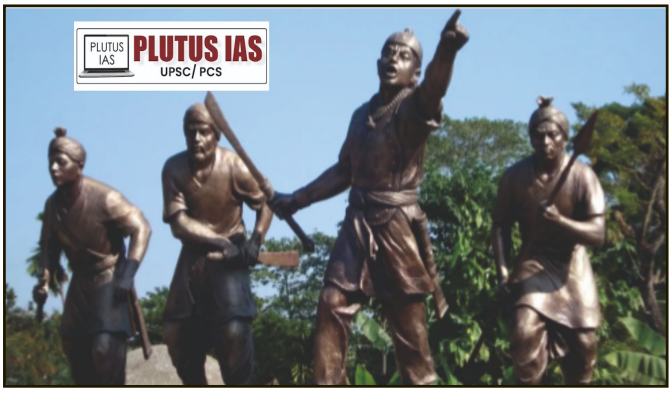
CONCLUSION

Vadnagar holds remarkable significance in shaping Indian art, culture, and history. Its rich heritage, reflected in its architecture, religious diversity, and continuous habitation, is a source of pride and inspiration. Preserving such treasures is essential to safeguarding India's cultural identity for future generations.

LACHIT BORPHUKAN: THE SHIVAJI OF THE NORTHEAST

WHY IN THE NEWS?

Lachit Borphukan was a legendary army commander of the Ahom kingdom, best known for his leadership during the Battle of Saraighat, where he successfully defended Assam against the Mughal forces. Lachit's actions not only saved Assam but also became a symbol of resilience and self-identity for the Assamese people. His courage and strength have earned him recognition as the 'Shivaji of the Northeast,' solidifying his place as one of India's greatest military heroes.



THE AHOM KINGDOM:

Period	Key Events
1228	Establishment: The Ahom Kingdom was founded by Sukaphaa, a Tai prince from Mong Mao (present-day Yunnan Province, China). He established the kingdom in the Brahmaputra Valley, based on wet rice agriculture.
16th Century (Suhungmung's reign)	Expansion: Under King Suhungmung, the kingdom expanded significantly and became multi-ethnic, incorporating various ethnic groups from the Brahmaputra Valley and beyond.
Late 17th Century	Battle of Saraighat (1671): Lachit Borphukan, the Ahom army commander, successfully defended the kingdom against Mughal invasion, preserving Assam's sovereignty and culture.
18th Century	Moamoria Rebellion: A series of uprisings by the Moamoria community weakened the kingdom's control, reducing its strength.
Early 19th Century	Burmese Invasions: The Ahom Kingdom faced repeated invasions from Burma, weakening its military and political power.
1826	British Conquest: After the defeat of the Burmese in the First Anglo-Burmese War and the signing of the Treaty of Yandabo, control of the Ahom Kingdom passed into the hands of the British East India Company, ending the kingdom's independence.

LACHIT BORPHUKAN:

1. Early Life

Lachit Borphukan was born on 24 November 1622 at Charaideo in Assam. He was the youngest son of Momai Tamuli Borbarua and Kunti Moran. He was born into a royal family. Momai Tamuli Borbarua was the commander-in-chief of the Ahom army, and he was the first Borbarua (Phu-Ke-Lung) of Upper Assam. Lachit's early education took place at his residence, where he was educated in subjects like Ahom scripture, Hindu religion, economics, and military strategies.

Career

Lachit Borphukan was appointed as the commander of '**Hanstidhara Tamuli'** and held various posts within the Ahom state. His talent and bravery were first recognized when he successfully handled the position of "**Ghura Baruah**" and later "**Shimaluguria Phukan."** He was later appointed as the chief officer, Dulakasharia Baruah, responsible for controlling the king's palace. It was during this time that Lachit's skills were recognized by Swargadeo Chakradhwaj Singha, who appointed him as Commander-in-Chief of the Ahom army.

2. Battle of Saraighat:

In 1662, the Mughal forces under Emperor Aurangzeb invaded Assam. Lachit Borphukan played a crucial role in the defense of Guwahati from the Mughal forces. Despite being severely ill, he led his troops in a desperate battle against the Mughal fleet. Lachit's leadership, determination, and selfless commitment to his duty inspired his soldiers to rally and fight valiantly. After an intense battle, the Mughals were forced to retreat, and Guwahati was successfully defended. Lachit's soldiers pursued the retreating Mughal forces to the Manas River, ensuring the complete victory of the Ahom forces.

3. Contributions of Lachit Borphukan:

1. **Defender of Assam:** Lachit Borphukan is most famously remembered for his leadership during the Battle of Saraighat in 1671, where he successfully repelled the Mughal forces, ensuring the independence of the Ahom kingdom.
2. **Master of Military Strategy:** Lachit revolutionized the tactics employed by the Ahom army, employing guerrilla warfare to overcome the Mughal forces, despite being outnumbered and technologically inferior.

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3. **Strong Leadership and Patriotism:** Despite being severely ill, Lachit's personal commitment to his duty and the welfare of his soldiers stood as a model of leadership, inspiring his men to continue fighting against overwhelming odds.

4. **Preserving Assamese Culture:** Through his actions and leadership, Lachit Borphukan ensured the protection of Assamese identity and culture from foreign invasions. His efforts in maintaining the integrity of the Ahom kingdom were instrumental in preserving the region's autonomy.

5. **Lachit Divas:** His contributions to the state of Assam and its victory are commemorated every year on 24 November as Lachit Divas, a day to honor his legacy and promote his ideals of bravery, leadership, and patriotism.

6. **Building of Lachit Maidan:** To honor his memory and legacy, Lachit Maidan was constructed in 1672 by the then king, Swargadeo Udayaditya Singha, where his remains lie in rest. This site continues to be a symbol of Lachit Borphukan's sacrifice for the Assamese nation.

WHY LACHIT BORPHUKAN IS CALLED THE SHIVAJI OF THE NORTHEAST

1. **Exceptional Leadership**: Like Shivaji Maharaj, Lachit Borphukan displayed outstanding leadership during the Battle of Saraighat, where he effectively commanded the Ahom forces to protect their kingdom from the Mughal invasion.
2. **Strategic Brilliance**: Lachit, akin to Shivaji, demonstrated great military strategy, using guerrilla tactics to outmaneuver the technologically superior Mughal army and ultimately securing victory despite being outnumbered.
3. **Patriotism Above All**: Lachit's unwavering commitment to his country and his people was evident when he put national duty above personal relationships, even sacrificing his maternal uncle for the greater good, showcasing the same patriotic spirit seen in Shivaji's leadership.
4. **Unyielding Courage**: Lachit's courage was comparable to that of Shivaji. Despite severe illness during the Battle of Saraighat, he led his troops from the front, refusing to retreat and inspiring his soldiers to fight for their land.
5. **Uniting Forces**: Just as Shivaji united the Marathas, Lachit Borphukan managed to bring together various tribal groups under the banner of Ahom, forming a cohesive force to defend Assam from foreign invaders.
6. **Symbol of Resistance**: Like Shivaji's resistance against the Mughal Empire, Lachit's fight against the Mughal expansion in the Northeast made him a symbol of defiance, preventing the Mughal Empire from extending its reach into Assam and the Northeast.
7. **Legacy of Valor**: The legacy of Lachit Borphukan, much like Shivaji's, continues to inspire generations. In recognition of his contributions to Assamese pride and independence, he is remembered annually on Lachit Divas, celebrated across Assam.

CONCLUSION

Lachit Borphukan was a symbol of indomitable courage and strong leadership. His contributions to the defense of Assam and his visionary leadership remain ingrained in Assamese history. The courage and foresight of Lachit Borphukan continue to inspire the people of Assam, and his legacy is celebrated annually on Lachit Divas, honoring his heroism and the victory of the Assamese army at the Battle of Saraighat.

Prelims Question:

1. With reference to Sree Narayana Guru's contribution to literature, which of the following statements is/are correct?

1. Guru wrote philosophical works based on Advaita Vedanta.
2. Guru's translation of the Thirukural was aimed at advocating religious tolerance and unity.

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

2. Consider the following Pairs:

s.no	Ancient sites	Present States
1	**Anartapura**	Maharashtra
2	**Dwarasamudra**	Karnataka
3	**Nabadwip**	Gujarat

How many of the above pairs are correctly matched?

A. Only one

B. Only two

C. All three

D. None

3. Lachit Borphukan is often referred to as the 'Shivaji of the Northeast' due to his significant role in defending Assam. Which of the following battles is he famous for?

1. Battle of Plassey
2. Battle of Saraighat
3. Battle of Alaboi
4. Battle of Haldighati

Select the correct answer from the options given below:

A. 1 and 2

B. 2 and 3

C. 1 and 4

D. 3 and 4

Answer

1. C	2. A	3. B

Mains Question

1. Discuss the significance of Sree Narayana Guru's philosophy in challenging the caste-based social system and promoting religious harmony. Analyze how his teachings continue to shape Kerala's social and cultural landscape.

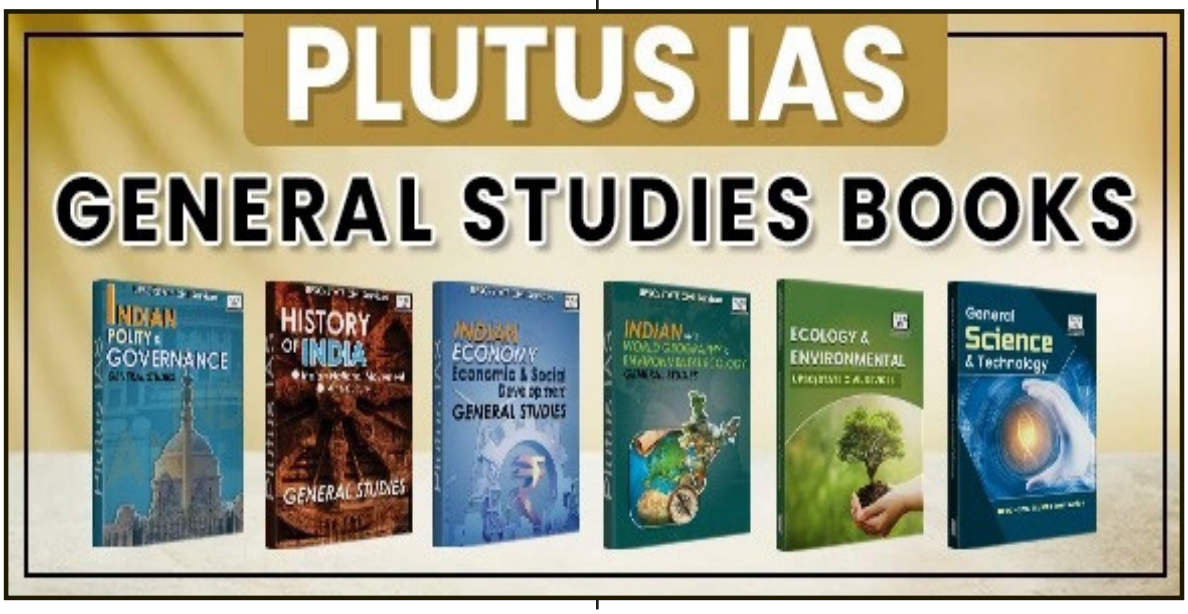
(250 words, 15 marks)

2. Examine the cultural significance of the Solanki and Paramara dynasties in shaping India's architectural and artistic heritage.

(Answer in 150 words)

3. Discuss the contributions of Lachit Borphukan in shaping the history and defense of Assam. How has his leadership earned him the title of the 'Shivaji of the Northeast'

(Answer in 250 words)



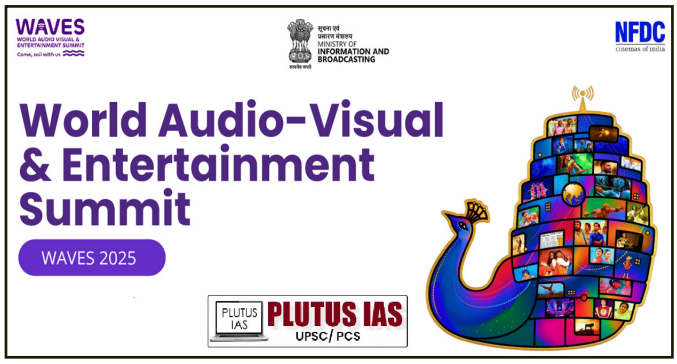
PLUTUS IAS UPSC/ PCS

PRELIMS BITs

PRELIMS BIT: WAVE SUMMIT

WHY IN THE NEWS?

Prime Minister of India Shri Narendra Modi, in the 117th episode of 'Mann Ki Baat,' shared exciting news about a major milestone for India's creative and entertainment sector. Addressing the nation, the Prime Minister announced that India will host the World Audio Visual Entertainment Summit (WAVES) for the first time next year.



WHAT IS WAVE SUMMIT?

The World Audio Visual & Entertainment Summit (WAVES) is a key forum for fostering discussions, collaboration, and innovation in the Media & Entertainment (M&E) industry. The event will unite industry leaders, stakeholders, and innovators to explore opportunities, address challenges, promote global trade, and shape the future of the sector. The WAVES Summit is set to be a global platform for India's creative talents, promoting collaborations and highlighting the country's potential as a hub for world-class content creation. It will also showcase India's progress in animation, gaming, entertainment technology, and both regional and mainstream cinema. The Prime Minister's call to action emphasizes the government's dedication to nurturing India's creative economy and establishing its position as a global leader in media and entertainment.

INDIA AND WAVES SUMMIT:

1. **First-Time Host**: India will host the World Audio Visual Entertainment Summit (WAVES) for the first time in February 2025.
2. **Global Platform**: WAVES will serve as a global platform to showcase India's creative talents and foster collaborations within the media and entertainment industry.
3. **Focus Areas**: The summit will highlight India's advancements in animation, gaming, entertainment technology, and both regional and mainstream cinema.
4. **Prime Minister's Support**: Prime Minister Narendra Modi emphasized the role of young creators and professionals in the summit, calling for active participation from all sectors of the creative industry.
5. **Cultural Significance**: Modi stressed the importance of the event in making India a global hub for content creation and strengthening its position in the media and entertainment sector.
6. **Encouraging Youth Participation**: The Prime Minister encouraged young creators, established artists, and professionals in TV, animation, gaming, and entertainment technology to take part in the summit.
7. **Global Collaboration**: Leaders and creative

minds from around the world will gather to discuss challenges, opportunities, and the future of the industry.

8. **Tributes to Legends**: Modi paid tribute to Indian cinema legends such as Raj Kapoor, Mohammed Rafi, Akkineni Nageswara Rao, and Tapan Sinha for their contributions to the industry and cultural heritage.

9. **Cultural and Economic Impact**: The summit is seen as a key step in enhancing India's global influence in the entertainment and creative sectors while contributing to the nation's economic growth.

Prelims Bits: Agricultural Transformation: Achievements of Ministry's Schemes and Programs

WHY IN THE NEWS?

The Department of Agriculture & Farmers Welfare (DA&FW) has been making concerted efforts to enhance the production and productivity of crops aiming to enhance the income of farmers. The MoA&FW is committed to taking several initiatives to empower the farmers through their capacity building on thrust areas such as crop diversification and production aspects in terms of qualitative inputs and judicious use of farm resources.



GOVT INITIATIVE TO PROMOTE THE AGRICULTURE SECTOR:

Scheme Name	Objective	Achievements
PM-KISAN	Provides ₹6,000/year to land-holding farmers in three instalments.	₹3.46 lakh crore disbursed to 11 crore farmers. One of the largest DBT schemes globally.
Agriculture Infrastructure Fund (AIF)	Provides debt financing for post-harvest management and farming infrastructure projects.	₹51,364 crores sanctioned for 84,159 projects (warehouses, cold storage, processing centres).
Farmer Producer Organizations (FPOs)	Promotes 10,000 FPOs to empower farmers through collective action.	₹6,865 crore allocated for 2020-2028. 9,180 FPOs registered.
Minimum Support Price (MSP)	Ensures fair returns by setting MSP at 1.5 times the cost of production.	MSP increased for crops like paddy (₹2,300/quintal) and wheat (₹2,425/quintal).
Namo Drone Didi Scheme	Provides drones to 15,000 Women SHGs for agricultural tasks.	500 drones distributed in 2023-24; the remaining 14,500 drones to be distributed over 2024-25 and 2025-26. SHGs to earn ₹1 lakh annually.
Per Drop More Crop (PDMC)	Enhances water use efficiency through micro-irrigation (drip/sprinkler systems).	95 lakh hectares covered with micro-irrigation systems. 30%-70% increase in water use efficiency.

Pradhan Mantri Fasal Bima Yojana (PMFBY)	Provides crop insurance against natural calamities.	₹1.70 lakh crore claims paid. DigiClaim ensures transparent payments through the National Crop Insurance Portal.
e-NAM Platform	Integrates mandis digitally for improved trading and market access.	1,410 mandis integrated; ₹4.01 lakh crore worth of trade recorded on e-NAM platform.
Digital Agriculture Mission	Develops Digital Public Infrastructure (DPI) for data-driven decision-making.	₹2,817 crore allocated. Digital IDs for 11 crore farmers and a nationwide Digital Crop Survey.
Soil Health & Fertility Scheme	Improves soil health through Soil Health Cards and management programs.	75 lakh soil samples collected; 53 lakh Soil Health Cards generated. 31 lakh farmers received soil health advisories.
National Mission on Natural Farming (NMNF)	Promotes natural farming for sustainability.	₹2,481 crore allocated. Supports organic farming and reduces dependency on chemicals.
Agroforestry under RKVY	Promotes tree plantation on farmland for additional farmer income.	1.21 lakh hectares planted with 532.3 lakh trees; 899 nurseries established.
National Beekeeping & Honey Mission (NBHM)	Promotes scientific beekeeping to enhance honey production.	₹500 crore allocated (extended to 2025). 8 Honey Testing Labs, 33 processing units established.
Sub-Mission on Agricultural Mechanization (SMAM)	Provides financial assistance for agricultural machinery and CHCs.	₹8,565 crore allocated. 1.91 million machines distributed; 26,637 CHCs established.
Crop Residue Management (CRM)	Subsidizes machinery to manage crop residue and reduce stubble burning.	₹4,391 crore allocated. 319,103 CRM machines distributed; 57% reduction in stubble burning in key states.
Climate Resilient Varieties	Develops crop varieties tolerant to extreme weather conditions.	109 climate-resilient varieties released for adoption by farmers.
Extension Reforms (ATMA)	Decentralizes agricultural extension services to make them farmer-friendly.	Implemented in 739 districts. Supports training, demonstrations, exposure visits, and farmer groups.

CONCLUSIONS

The government has been implementing various initiatives aimed at boosting the agricultural sector and improving the livelihoods of farmers. Programs such as PM-KISAN, which provides direct income support, ensure financial stability for farmers, while the Agriculture Infrastructure Fund (AIF) and Sub-Mission on Agricultural Mechanization (SMAM) focus on improving post-harvest management and farming practices through infrastructure development. Farmer Producer Organizations (FPOs) and digital platforms like e-NAM empower farmers by promoting collective action and better market access. Additionally, schemes like Per Drop More Crop (PDMC) enhance water use efficiency, and the Soil Health & Fertility Scheme promotes sustainable soil management. Innovative programs like Namo Drone Didi are also encouraging the use of technology, particularly in empowering women in farming.

PRELIMS BITS:
DEPARTMENT OF ATOMIC ENERGY (DAE)

PLUTUS IAS UPSC/ PCS

WHY IN THE NEWS?

The Government of India has reconstituted the Atomic Energy Commission (AEC), as announced through a notification published in the Gazette on January 9. Initially established in August 1948 under the Department of Scientific Research, the AEC plays a pivotal role in formulating policies for the Department of Atomic Energy (DAE).



DEPARTMENT OF ATOMIC ENERGY (DAE)

Establishment and Overview

- **Founded:** August 3, 1954, under the direct charge of the Prime Minister through a Presidential Order.
- **Type:** Non-statutory, Non-Constitutional body, Executive Body under the direct Charge of the PMO.
- **Objective:** To transact all Government of India business related to atomic energy as per the Atomic Energy Act, 1948.
- **Atomic Energy Commission (AEC):** Established on March 1, 1958, with full executive and financial powers to formulate policies for the DAE.

COMPOSITION OF THE AEC:

1. **Chairman:** The Chairman of the AEC is the Secretary to the Government of India in the Department of Atomic Energy (DAE). The current Chairman is Dr. Ajit Kumar Mohanty, who took over from Kamlesh Nilkanth Vyas in May 2023.
2. **Other Members:** Members of the AEC are appointed on an annual basis for each calendar year. The Chairman recommends the members, and their appointments are subject to approval by the Prime Minister of India.

ORGANIZATIONAL STRUCTURE

- **Research Centers (6):** BARC (Mumbai), IGCAR (Kalpakkam), RRCAT (Indore), VECC (Kolkata), AMDER (Hyderabad), GCNEP (Bahadurgarh).
- **Industrial Organizations (3):** NFC (Hyderabad), HWB (Mumbai), BRIT (Mumbai).
- **Public Sector Undertakings (5):** NPCIL (Mumbai), BHAVINI (Kalpakkam), ECIL (Hyderabad), UCIL (Jaduguda), IREL (Mumbai).
- **Service Organizations (3):** DCSEM (Mumbai), DPS (Mumbai), GSO (Kalpakkam).
- **Grant-in-Aid Institutes (11):** TIFR, SINP, TMC, HRI, IoP, NISER, IMSc, IPR, HBNI, UM-DAE CEBS, AEES.

BOARDS UNDER DAE:

1. **Board of Research in Nuclear Sciences (BRNS):** Promotes extramural research in nuclear and allied fields.
2. **National Board for Higher Mathematics (NBHM):** Supports advanced research in mathematics.

Mandate and Functions:

- Development of **nuclear power technology** and applications in power and non-power domains.
- Exploration, identification, and processing of **uranium resources** and atomic minerals.

POWER SECTOR APPLICATION:

1. Fabrication of nuclear fuel.
2. Production of heavy water.
3. Construction and operation of nuclear power plants.
4. Nuclear fuel reprocessing and waste management.
5. Research and development in: Fast reactor and fusion technologies.
6. Accelerator and laser technologies, Advanced electronics and materials science, and Biological sciences for healthcare and agriculture.

Non-power applications: Isotopes and radiation technologies for healthcare, food, agriculture, industry, and environmental protection.

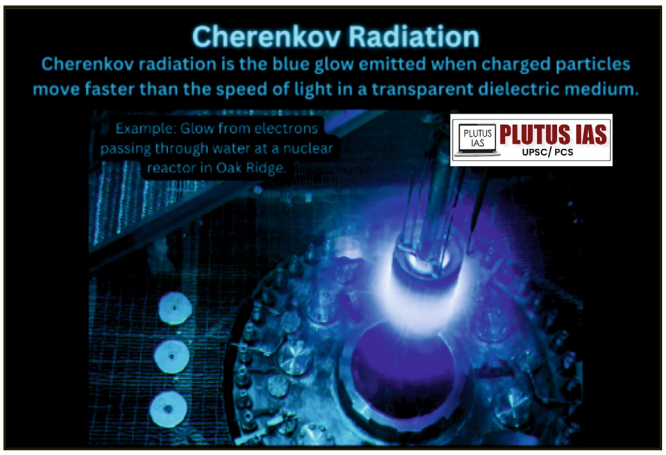
KEY ACHIEVEMENTS AND CONTRIBUTIONS OF DAE:

1. **Pioneering R&D in nuclear energy and allied disciplines:** Development and operation of the Trombay Atomic Energy Establishment (1957), now BARC, which spearheads nuclear research in India. Indigenous design and construction of Pressurized Heavy Water Reactors (PHWRs), contributing significantly to India's nuclear power capacity.
2. **Societal applications of spin-off technologies:** The development of **Bhabhatron**, a low-cost cancer therapy machine, is revolutionizing cancer treatment in India and abroad. Production of **radiation-processed seeds** for higher-yield crops, enhancing agricultural productivity.
3. **Urban waste management solutions:** Implementation of **Nisargruna Biogas Plants**, converting organic waste into clean energy. Development of advanced technologies for treating and managing municipal waste in cities.
4. **The synergy between research, development, and technology deployment:** Establishment of the **Fast Breeder Test Reactor (1985)** at Kalpakkam, advancing breeder reactor technology. Contribution to **India's Mars Orbiter Mission (Mangalyaan)** by providing critical materials and nuclear-grade components.
5. **Enhancing energy security and fostering growth:** Commissioning of the **Kudankulam Nuclear Power Plant (2013)**, built with international collaboration. Supporting industrial growth through partnerships like **Nuclear Fuel Complex (NFC)** and **Heavy Water Board (HWB)** for nuclear fuel and heavy water production.

PRELIMS BITS: CHERENKOV RADIATION

WHY IN THE NEWS:

Dr. Ajit Kumar Mohanty, Secretary of the Department of Atomic Energy (DAE) and Chairman of the Atomic Energy Commission, inaugurated the Major Atmospheric Cherenkov Experiment (MACE) Observatory at Hanle, Ladakh. MACE is the largest imaging Cherenkov telescope in Asia and holds the distinction of being the highest of its kind globally, located at an altitude of approximately 4,300 meters. The telescope, which was indigenously built by BARC with support from ECIL and other Indian industry partners, plays a key role in advancing atmospheric science research. The inauguration of the MACE Observatory is part of the Platinum Jubilee year celebrations of the DAE.



What is Cherenkov Radiation?

Cherenkov radiation is a distinct blue glow that occurs when electrically charged particles, such as electrons, travel faster than the speed of light in a transparent medium like water or glass. It is a form of electromagnetic radiation that is analogous to a shock wave, similar to the sonic boom created when an object exceeds the speed of sound in air.

Discovery of Cherenkov Radiation

1. **Who Discovered It?** Russian physicist **Pavel Cherenkov** discovered the phenomenon in 1934 while studying the effects of radiation on liquids.
2. **Nobel Prize Recognition:** Cherenkov, along with his colleagues **Ilya Frank** and **Igor Tamm**, received the **1958 Nobel Prize in Physics** for their theoretical and experimental work explaining the phenomenon.

KEY CHARACTERISTICS OF CHERENKOV RADIATION

Color: The blue color is due to the dominance of shorter wavelengths in the visible spectrum emitted by the radiation.

1. **Speed Threshold:** The particle must travel faster than the phase velocity of light in the medium to produce Cherenkov radiation.

2. **Medium Dependent:** Common media include water, glass, or specific transparent materials, with water being the most commonly observed medium.

HOW DOES IT HAPPEN?

1. **High-Speed Particles:** Charged particles, such as electrons or protons, achieve speeds greater than the speed of light within the medium (note: this does not violate Einstein's theory of relativity, as the speed of light in a vacuum is the universal speed limit).
2. **Interaction with the Medium:** The high-speed particles disturb the electromagnetic field of the medium, polarizing its molecules.
3. **Photon Emission:** When the medium's molecules return to their normal state, they release energy in the form of photons (light particles).
4. **Cone-Shaped Radiation:** The emitted photons align in a conical shape, producing the characteristic blue glow.

APPLICATIONS OF CHERENKOV RADIATION

1. **Nuclear Reactors:** The famous **blue glow** in nuclear reactors arises from Cherenkov radiation as high-energy particles released during fission move through the water used as a coolant or moderator. It serves as a visual indicator of the reactor's operational status.

2. **Particle Physics:** Cherenkov radiation is used in **Cherenkov detectors** to identify particles by their velocity, enabling differentiation between lighter and heavier particles. These detectors are crucial for studying subatomic particles in experiments like those conducted at CERN.

3. **Astrophysics:** Cherenkov radiation helps detect **cosmic rays** and observe **neutrinos** through ground-based telescopes like the **Cherenkov Telescope Array (CTA)**. It also contributes to understanding high-energy phenomena in the universe, such as supernovae and gamma-ray bursts.

4. **Medical Imaging:** In **oncology**, Cherenkov radiation is utilized for imaging **radioisotopes** during radiotherapy. It also aids in monitoring external beam radiation therapies, improving accuracy in treating cancer.

5. **Radiation Detection:** Used in **nuclear safeguards**, Cherenkov radiation helps detect spent nuclear fuel in storage pools, ensuring safe and secure handling.

Prelims Question

1. With reference to the World Audio Visual & Entertainment Summit (WAVES) and India's engagement with it, consider the following statements:

1. India will host the WAVES Summit for the first time in February 2025.

2. The WAVES Summit will exclusively focus on Bollywood cinema and ignore other regional industries.

3. The Prime Minister has emphasized the importance of youth participation in the creative economy during the WAVES Summit.

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:

1. PM-KISAN provides direct income support of ₹6,000 per year to land-holding farmers.
2. 2. The Namo Drone Didi Scheme distributes drones to 10,000 women SHGs for agricultural tasks.
3. The Per Drop More Crop (PDMC) scheme focuses on increasing the area of irrigated land without improving water use efficiency.

How many of the statements given above are correct?

A. Only one

B. Only two

C. All three

D. None

3. With reference to the Atomic Energy Commission (AEC) Consider the following statement:

1. The AEC is a statutory body constituted under The Atomic Energy Act of 1948.
2. The AEC is mandated to regulate the power and non-power use of atomic minerals.
3. Indigenous design and construction of Pressurized Heavy Water Reactors (PHWRs) is one of the contributions of the AEC.

How many of the above-given statements are correct?

A. Only one

B. Only two

C. All three

D. None

4. Which of the following statements are correct about Cherenkov radiation?

1. Cherenkov radiation occurs when charged particles travel faster than light in a transparent medium.
2. It is a form of electromagnetic radiation similar to a sonic boom.
3. The radiation is commonly observed as a blue glow.

Select the correct answer using the code given below:

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

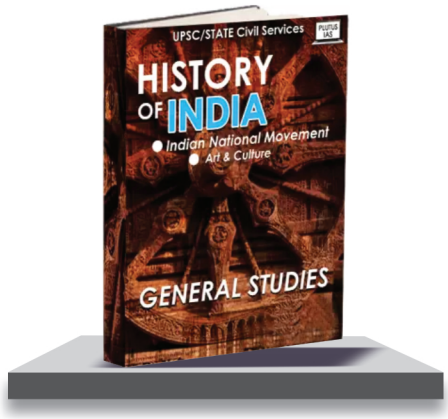
D. 1, 2 and 3

Answer

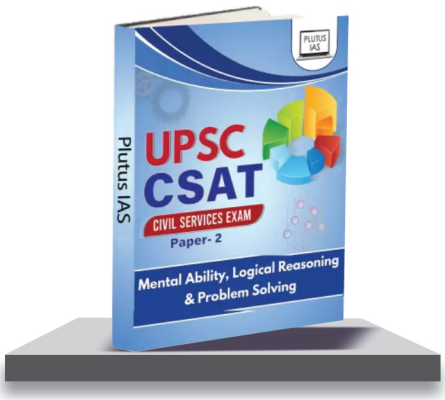
1. A	**2. B**	**3. B**	**4. D**



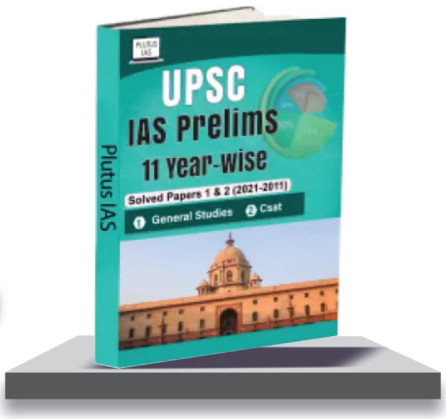
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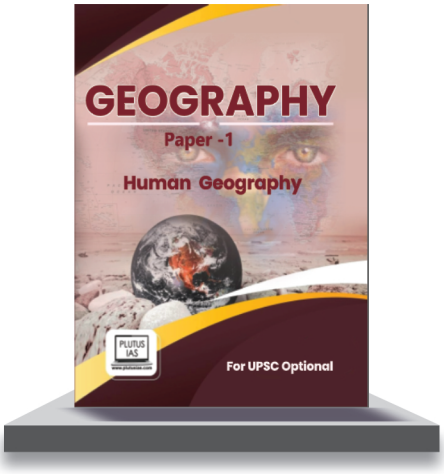


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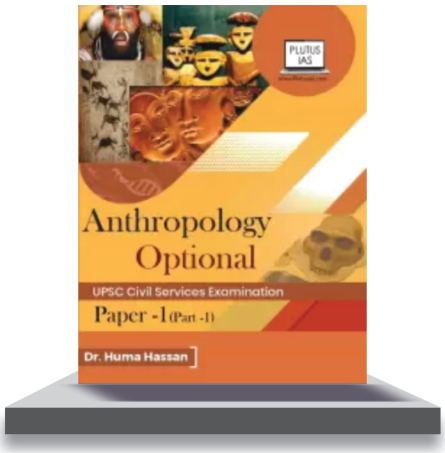


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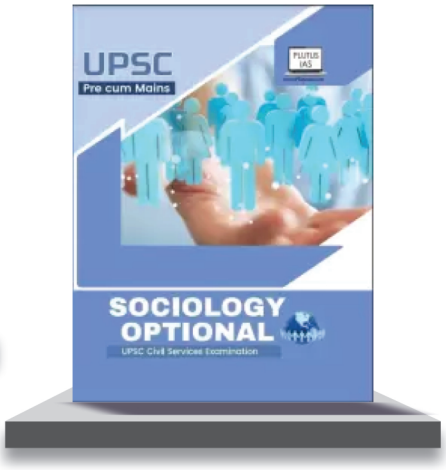
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