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Monthly Current Affairs Magazine

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-ECONOMY-



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# GLOBAL INNOVATION

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GENERAL STUDIES



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## Message



An officer with a right mindset is an officer that a nation aspires for. A right mindset doesn't necessarily comprise unlimited jargon of knowledge rather a right amount of knowledge and its appropriate execution. Especially, when it comes to UPSC and State PSCs preparation, the crux is not to accumulate the knowledge but its effective implementation and utilization in tackling any situation. The situation here can be anything from UPSC CSE Prelims to the major issues that need to be addressed. The journey is hard but it is worth.

Perfect 7 has been part of many UPSC and State PSCs aspirants in their journey of becoming well reputed officers serving nationally and internationally. The magazine itself had gone through constant ebb and flows of change and improvements. Now, that the magazine is in its monthly era, I hope it becomes your perfect preparation partner and guides you through this ever learning endeavor of Civil Services Preparation.

With Best wishes.

Vinay Singh  
Founder  
Dhyeya IAS

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### 1. National ..... 06-20

- ✓ The Changing Dynamics of Extremism and Security in India: A Focus on Manipur and AFSPA
- ✓ Supreme Court's Historic Decision: Criticism of Bulldozer Justice and Protection of Civil Rights
- ✓ Supreme Court's Judgment on Private Property: Analyzing the Constitutional Provisions
- ✓ PM-Vidyalaxmi Scheme
- ✓ SC Overturns 1967 Ruling on AMU Minority Status
- ✓ Accessibility for Disabled Persons: A Human and Fundamental Right – Supreme Court
- ✓ India's First All-Women Battalion in the Central Industrial Security Force
- ✓ Operation Dronagiri
- ✓ AFSPA Reimposed in Key Areas of Manipur
- ✓ Supreme Court Upholds 'Socialist' and 'Secular' in Preamble
- ✓ Pennaiyar River Water Sharing Dispute
- ✓ National Counter-Terrorism Policy
- ✓ Telecommunications (Telecom Cyber Security) Rules, 2024

### 2. International ..... 21-34

- ✓ India-U.S. Relations: Opportunities, Challenges under a Second Trump Administration
- ✓ U.S., Japan, and South Korea Collaborate on Digital Infrastructure in India
- ✓ Brazil's Withdrawal from China's Belt and Road Initiative
- ✓ Strategic Dimensions of India-Spain Relations
- ✓ Indian Official Meets Afghan Defence Minister, Offers Use of Chabahar Port to Enhance Trade
- ✓ Strategic Air Defence Agreement between India and Russia

- ✓ India – Nigeria Strategic Partnership
- ✓ 5-Year Strategic Action Plan By India and Italy
- ✓ Chennai-Vladivostok Maritime Corridor: Strengthening India-Russia Maritime Ties
- ✓ Strengthening India-CARICOM Ties: Prime Minister Modi's Vision
- ✓ The 6th ASEAN-India Trade in Goods Agreement (AITIGA) Joint Committee Meeting
- ✓ Withdrawal from the Paris Agreement
- ✓ 11th ASEAN Defence Ministers' Meeting-Plus

### 3. Environment ..... 35-48

- ✓ India's Evolving Role in Global Climate Governance
- ✓ India Launches Updated National Biodiversity Strategy and Action Plan at COP 16 in Colombia
- ✓ UNEP Adaptation Gap Report 2024
- ✓ World's First CO2 to Methanol Conversion Plant
- ✓ Lead Exposure and Its Global Economic and Health Impacts
- ✓ Global Carbon Markets and Climate Finance
- ✓ India's Renewable Energy Growth
- ✓ Fourth Edition of "An Eye on Methane: Invisible but Not Unseen" Report
- ✓ Fossil Fuel Non-Proliferation Treaty Initiative (FF-NPT)
- ✓ Launch of the Global Energy Efficiency Alliance at COP29
- ✓ Teesta Valley on Brink of Disaster: Experts Warn of Catastrophic Consequences
- ✓ Guru Ghasidas-Tamor Pingla Tiger Reserve
- ✓ A Global Plastic Treaty

### 4. Science and Tech ..... 49-62

- ✓ India's Growing Influence in Global Innovation
- ✓ Crucial Data on Solar Eruptions from Aditya-L1 Mission



- ✓ RNA Editing
- ✓ DoPT Report Reveals Growing Cybersecurity Threats
- ✓ India Successfully Tests Long Range Land Attack Cruise Missile Off Odisha's Coast
- ✓ PAIR Programme to Boost Research and Innovation in Higher Education
- ✓ Assam Semiconductor Plant
- ✓ India's First Direct-to-Device Satellite Internet Service
- ✓ India's First Indigenous Antibiotic: Nafithromycin
- ✓ World's First Parallel Satellite Pair
- ✓ Venus Mission "Shukrayaan"
- ✓ Technology for Early HIV Detection
- ✓ India's 6GHz Spectrum Dilemma and Its Impact on PS5 Pro Launch

## 5. Economy ..... 63-76

- ✓ Public Distribution System (PDS): An Essential Instrument for Food Security in India
- ✓ RBI Introduces Framework for Reclassification of FPI to FDI
- ✓ PAN 2.0 Project: Transforming Taxpayer Services in India
- ✓ National Mission on Natural Farming (NMNF)
- ✓ Youth Unemployment in India
- ✓ India's Commitment to Strengthening Intellectual Property
- ✓ Milk, Meat, and Egg Production in India in 2023-24
- ✓ Digital Currencies
- ✓ Domestic Systemically Important Banks (D-SIBs) and RBI Regulations
- ✓ Enhancing Opportunities through School-Based Skilling
- ✓ Merging Regional Rural Banks in India
- ✓ Strengthening India-EFTA Trade Ties
- ✓ The Decline in Out-of-Pocket Expenditure (OOPE) in Healthcare in India

## 6. Miscellaneous ..... 77-89

- ✓ Advancing STEM Education in India: Progress, Challenges, and the Way Forward

- ✓ Global TB Report 2024
- ✓ First Asian Buddhist Summit (ABS) 2024
- ✓ 'Chalo India Campaign'
- ✓ Seventh Session of the International Solar Alliance Annual Assembly
- ✓ World Cities Report 2024
- ✓ UNESCO Global Education Monitoring Report 2024
- ✓ The 1st Global Ministerial Conference on Ending Violence Against Children
- ✓ IIT-M Study Advocates Participatory Approach to AI Governance
- ✓ QS World University Rankings: Asia 2025
- ✓ A Quarter of Diabetics Globally Are Indians
- ✓ Australia's Plan to Ban Social Media for Teenagers
- ✓ India Struggles with Limited Effectiveness of Gender Responsive Budgeting: UN Report

## 7. Quick Learn ..... 90-132

### Brain Boosters ..... 90-99

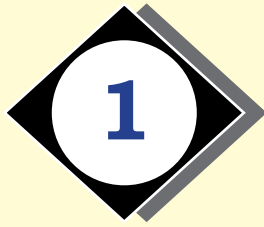
- ✓ Constitution Day (26th November)
- ✓ India in Global Innovation (WIPO 2024 Report)
- ✓ Formation of Indian States and Union Territories
- ✓ India's Polio Eradication
- ✓ Namo Drone Didi Scheme
- ✓ PM Vishwakarma Yojana
- ✓ PM-Vidyalaxmi Scheme
- ✓ Towards a TB-Free India
- ✓ Production Linked Incentive (PLI) Scheme
- ✓ Sagarmathan 2024 – India's Maritime Vision

### Places in News ..... 100-101

### Power Packed News ..... 102-117

### One Liners ..... 118-120

### Current Based MCQs ..... 121-130



# National



## The Changing Dynamics of Extremism and Security in India: A Focus on Manipur and AFSPA

India's internal security landscape is marked by several regions that have been affected by extremism and insurgencies, particularly in the northeastern states. Manipur, one of the most volatile regions, has witnessed decades of unrest, influenced by ethnic tensions, insurgent activities, and demands for autonomy. This article explores the evolving security situation in Manipur, the role of the Armed Forces Special Powers Act (AFSPA), and the socio-political implications of the Disturbed Areas status.

### Historical Background of Extremism in India

- ❖ **Insurgencies and Ethnic Conflicts:** Internal extremism in India has manifested in various forms, including regional autonomy movements and ethnic conflicts. In the northeastern states, particularly Manipur, insurgencies have been fueled by demands for independence and self-determination from ethnic groups.
- ❖ **The Complex Demography of Manipur:** Manipur's demographic makeup—dominated by the Meitei community in the valley and Kuki,

Naga, and other indigenous groups in the hills—has contributed to tensions. These tensions have often been exacerbated by political demands, leading to sustained insurgent activities.

### The Role of the Armed Forces Special Powers Act (AFSPA)

- ❖ **Introduction of AFSPA:** The Armed Forces Special Powers Act (AFSPA) was enacted in 1958 to address insurgencies in the northeastern states. The Act empowers the armed forces to take extreme measures to maintain law and order in areas deemed "disturbed." In Manipur, AFSPA was imposed in 1980 in response to escalating insurgent activities.
- ❖ **Powers and Criticisms:**
  - » AFSPA grants security forces the authority to use lethal force, arrest individuals without warrants, and search premises without prior approval.
  - » The Act has been criticized for its potential to infringe on human rights, as it provides sweeping powers to the armed forces with

little accountability. This has often led to allegations of abuse and violations.

- ❖ **Impact on Security and Governance:** AFSPA has been central to India's counter-insurgency strategy, but it has also created an atmosphere of militarization and impunity. While it has contributed to the suppression of insurgent activities, it has also disrupted civil administration and economic development in affected areas.

### Disturbed Area Status and Its Implications

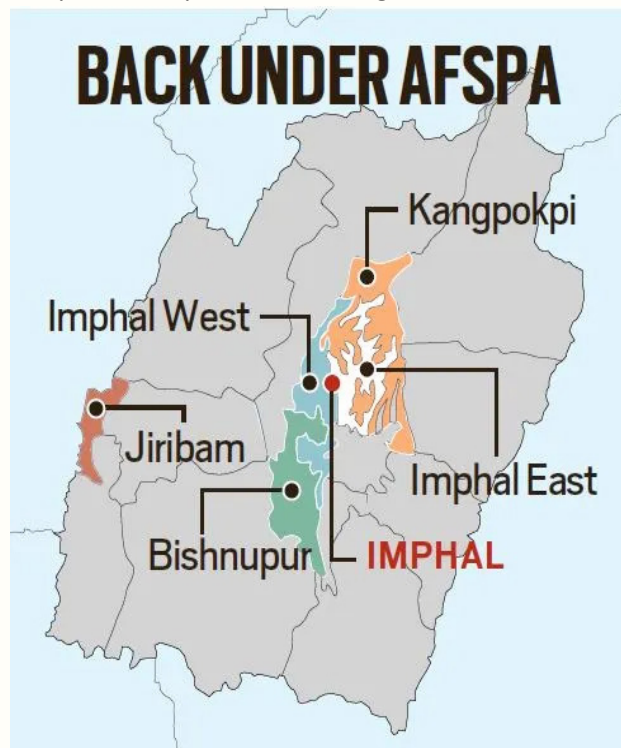
- ❖ **Definition and Application:** The Disturbed Area status is declared when an area is deemed to be in a state of internal conflict, necessitating the deployment of armed forces under AFSPA. This status is renewed periodically based on an assessment of the security situation.
- ❖ **Historical Withdrawal of Disturbed Area Status:**
  - » In 2004, the status was partially withdrawn from some parts of the Imphal Valley following protests against AFSPA and the killing of Thangjam Manorama. However, the rest of the state remained under the Disturbed Area notification.
  - » In 2022, areas of the Meitei-dominated valley were gradually removed from the Disturbed Area status, marking a temporary de-escalation.
- ❖ **Re-Imposition in 2024:** Due to renewed violence and ethnic clashes, the Indian government has re-imposed the Disturbed Area notification in certain regions of Manipur. These areas include:
  - » Sekmai and Lamsang in Imphal West
  - » Lamlai in Imphal East
  - » Moirang in Bishnupur
  - » Leimakhong in Kangpokpi
  - » Jiribam, located at the westernmost edge of the state

### Geographical and Demographic Context:

- ❖ **Strategic Importance of Re-imposed Areas:** The regions where the Disturbed Area status has been re-imposed are crucial for maintaining security:
  - » Sekmai and Lamsang are located near the Meitei-majority areas and are vulnerable to ethnic violence from the Kuki-majority hill

districts.

- » Jiribam, located near Assam's Cachar district, has a mixed population and is sensitive due to its proximity to insurgency-prone areas like Pherzawl and Tamenglong in the hill districts.
- » Leimakhong, home to the 57 Mountain Division of the Indian Army, is of military importance, contributing to the state's security apparatus.
- ❖ **Ethnic Tensions and Territorial Disputes:** The demographic makeup of Manipur's Imphal Valley and hill districts remains a source of ethnic tension. The Kuki, Naga, and Meitei communities have historically had competing political aspirations, leading to violent conflicts.



### AFSPA's Impact on Socioeconomic Conditions

- ❖ **Military Presence and Economic Disruption:** Areas under AFSPA experience significant socio-economic challenges. The heavy military presence often disrupts daily life and hinders economic activities, limiting infrastructure development, access to education, and healthcare services.
- ❖ **Human Rights Concerns:** The sweeping powers granted to the military under AFSPA have led



to numerous human rights violations. These include arbitrary arrests, extrajudicial killings, and the suppression of peaceful protests, all contributing to a breakdown of trust between the civilian population and the state.

- ❖ **Developmental Setbacks:** The instability created by the imposition of AFSPA has led to underdevelopment in affected areas. Economic opportunities are limited, and people living in conflict zones face difficulties in accessing basic amenities. This further fuels the grievances of affected communities.

### The Path Toward Lasting Peace

- ❖ **Promoting Inclusive Governance:**
  - » **Political Dialogue:** Engaging all ethnic groups in the political process and addressing their demands for autonomy and self-determination is crucial.
  - » **Ensuring Minority Representation:** Efforts to ensure that minority groups, especially the Kuki and Naga communities, feel included in the governance of the state are essential for long-term peace.
- ❖ **Socio-Economic Development:**
  - » **Infrastructure Development:** Focus on infrastructure projects that improve access to education, healthcare, and employment opportunities in conflict-affected regions.
  - » **Improving Livelihoods:** Addressing the economic grievances of marginalized communities can help reduce the appeal of insurgent groups and militias.
- ❖ **Strengthening Local Law Enforcement:**

- » **Reducing Dependence on the Military:** Empowering local police forces and reducing the need for military intervention is essential for restoring civilian control and fostering trust between the government and the people.
- » **Accountability for Security Forces:** Ensuring accountability for the actions of security personnel is key to rebuilding trust and ensuring that the application of AFSPA does not result in human rights violations.

### Conclusion:

Manipur's complex security situation underscores the limitations of using military power alone to resolve deep-rooted ethnic and political conflicts. While AFSPA and the Disturbed Area status have played a role in maintaining order, they have also contributed to human rights violations, socio-economic challenges, and a breakdown in civil-military relations.

- ❖ To achieve lasting peace, India must prioritize:
  - » Inclusive governance that addresses the concerns of all communities,
  - » Development initiatives that improve the living standards of those affected by conflict, and
  - » A balanced approach to security that reduces the military footprint and restores civilian control.

Only by addressing both the political and socio-economic dimensions of the conflict can Manipur move toward a peaceful and prosperous future.

## Supreme Court's Historic Decision: Criticism of Bulldozer Justice and Protection of Civil Rights

A Supreme Court bench led by Justices B.R. Gavai and K.V. Viswanathan recently delivered a significant judgment that criticized the practice of "bulldozer justice" in cases of illegal demolitions. This decision raised serious concerns over the state government's practice of demolishing properties of individuals involved in crimes as a form of punishment. This judgment is being seen as historic,

marking an important step in the protection of fundamental rights of citizens.

### Bulldozer Justice: A Controversial Practice

- ❖ In India, "bulldozer justice" has become a widely discussed and controversial practice, where authorities demolish the properties of individuals involved in crimes, including illegal constructions or properties linked to criminal

activities, using bulldozers and heavy machinery. Often, these actions are taken without following legal procedures or obtaining judicial orders.

### Background of the Case: Tibrewal Akash Case

- ❖ This practice came under scrutiny in 2019, after the demolition of journalist Manoj Tibrewal Akash's ancestral property in Uttar Pradesh. Authorities claimed it was done for the expansion of a national highway, but the court found multiple violations in the process.
- ❖ Officials demolished the property without issuing a written notice and exceeded the prescribed boundary. Actually this action was taken on the issues of Tibrewal's father's demand for an investigation into irregularities in the road project, leading many to view it as an act of retaliation.

### NHRC (National Human Rights Commission) Report

- ❖ The National Human Rights Commission (NHRC) reported that excessive action had been taken in this demolition. According to the Commission, where there was an encroachment of only 3.7 meters, authorities demolished a space between 5 and 8 meters.

### Arguments in Favor of Bulldozer Justice:

Supporters view bulldozer justice as a means to control crime and maintain law and order in society, arguing:

- ❖ **Crime Deterrence:** Proponents believe demolishing illegal constructions or properties linked to crimes can help curb criminal activities. They argue it sends a strong message to others about the consequences of breaking the law.
- ❖ **Quick Action:** Some see it as a quick and effective way to remove illegal structures. Judicial procedures in such cases can be lengthy, whereas swift action is often necessary.
- ❖ **Public Sentiment and Sense of Justice:** Another argument is that bulldozer justice instills public confidence in a strong and immediate justice system, especially in cases where judicial procedures are time-consuming and offenders often escape punishment.
- ❖ **Strict Action by the State:** Some believe it represents a firm and timely step by the

government to curb criminals and unlawful activities. They argue it can quickly curb corruption and other social ills and create a sense of fear among wrongdoers.

- ❖ **Quick Removal of Illegal Constructions:** Supporters also argue that it is essential to act against encroachments and illegal constructions in cities and metropolitan areas. This kind of action can ensure proper land use and prevent urban disorganization, as well as ensure public safety by demolishing illegal buildings.

### Supreme Court's Decision: Key Points

- ❖ The court clarified that illegal demolitions may be wrongful actions by the state, violating citizens' property rights. It mandated that legal procedures must be followed before any demolition. In its decision, the Supreme Court raised several critical points against illegal demolitions and outlined six key steps that must be taken before demolishing any property:
  - » Verification of land records and maps
  - » Proper surveying of encroachments
  - » Issuance of a written notice to encroachers
  - » Conducting hearings and issuing orders
  - » Allowing adequate time for voluntary removal
  - » Legal acquisition of additional land, if necessary

### Supreme Court's View: Criticism of 'Bulldozer Justice'

In this judgment, the Supreme Court reviewed several fundamental legal principles and raised serious concerns against bulldozer justice, as follows:

- ❖ **Rule of Law:** The court emphasized that even the state must adhere to the law. Demolishing someone's property without legal procedure violates the principles of democracy and justice. Failure to adhere to this would undermine public trust in constitutional institutions.
- ❖ **Presumption of Innocence:** The court stated that demolishing a person's property without convicting them violates the presumption of innocence.
- ❖ **Right to Shelter:** The court clarified that the right to housing is part of human dignity, and no one can be deprived of this right without due legal process. This right is part of the fundamental

rights under Article 21.

- ❖ **Misuse of Power:** The court observed that in some cases, bulldozer justice may represent an abuse of power, where discriminatory actions are taken against specific individuals or communities, potentially fostering feelings of isolation within affected communities.
- ❖ **Creation of Fear in Society:** The court remarked that such swift actions could create an atmosphere of fear and insecurity in society, weakening the sense of justice.
- ❖ **Avoiding Delays in Justice:** While the court acknowledged the issue of delays in the judicial process, it also suggested improving and accelerating judicial processes rather than resorting to bulldozer justice.
- ❖ **Lack of Evidence and Proof:** The court also noted that in cases of illegal demolitions, it is crucial that authorities have appropriate evidence and proof, and any action taken without such evidence should be prohibited.

### Way Forward

- ❖ This decision by the Supreme Court is a significant step in the Indian judicial system, standing against the rising influence of “bulldozer justice.” It is a vital principle for the protection of justice, the Constitution, and civil rights. Through this judgment, the court has made it clear that no action by the state can go against judicial processes and legal rights.
  - » **Corrective Oversight:** The Supreme Court recommended establishing an independent oversight mechanism for demolition actions to ensure no officer can act outside the law.
  - » **Legal Reforms:** The court also suggested that legal reforms are necessary to protect citizens from illegal actions by the state and ensure adherence to legal procedures.

## Short Issues

### Supreme Court’s Judgment on Private Property: Analyzing the Constitutional Provisions

#### Why in News:

The Supreme Court of India recently delivered a landmark judgment affirming that the state does not have an unrestricted right to acquire private property for public use. This ruling, made by a nine-judge Constitution Bench led by Chief Justice D.Y. Chandrachud, marks a significant shift in the interpretation of property rights and India’s economic policies.

- Historically, the state had broad powers to acquire private property for the “common good,” but this decision departs from those doctrines, reflecting India’s transition from a socialist economic model to a more liberalized, market-driven economy.
- The judgment draws heavily on the interplay between Part III (Fundamental Rights) and Part IV (Directive Principles of State Policy) of the

Constitution, which outline the relationship between individual rights and state power.



#### Article 300A – Right to Property

- Article 31, which once guaranteed the fundamental right to property, was repealed by the 44th Amendment (1978). The replacement, Article 300A, ensures that property is a legal right, not a fundamental right.
- The Court’s judgment emphasizes that the state can only acquire property through lawful procedures, ensuring fair compensation and due



process. This prevents arbitrary confiscation of property.

### Article 19(1)(f) – Right to Property (Before 1978)

- Before 1978, Article 19(1)(f) protected the fundamental right to acquire, hold, and dispose of property. Though this provision was repealed by the 44th Amendment, the Court acknowledged its historical significance, reinforcing that the state must respect property rights within constitutional limits.

### Doctrine of “Public Purpose” and Eminent Domain:

- The state has the power to acquire property under the Eminent Domain Doctrine for public purposes, but the Court has narrowed the definition of “public purpose.” It rejected broad interpretations that allowed arbitrary state acquisitions, stressing that such acquisitions must serve direct public welfare, economic growth, or national interest.

### Directive Principles of State Policy (Part IV):

- While DPSPs guide government policy, they are not legally enforceable. The Court highlighted Article 39(b), which directs the state to distribute resources for the common good. It emphasized that the evolving economic context requires a balance between private property rights and public welfare.
- In rejecting the broad interpretation of property acquisition for “public good,” the Court emphasized fair compensation, due process, and a clear public purpose, marking a significant move toward protecting individual property rights in India’s market economy.

## PM-Vidyalaxmi Scheme

### Why in News:

The Union Cabinet has approved the PM-Vidyalaxmi scheme, which offers collateral-free and guarantor-free education loans to students admitted to Quality Higher Education Institutions (QHEIs).

### Key features of the scheme:

- Financial Outlay:** An allocation of ₹3,600 crore has been made for the scheme for the period 2024-25 to 2030-31.
- Beneficiaries:** Approximately 7 lakh new students

are expected to benefit from the interest subvention provided under the scheme.

- Credit Guarantee:** The central government will provide a 75% credit guarantee for education loans up to ₹7.5 lakh.
- Interest Subvention:** Students with an annual family income of up to ₹8 lakh who are not eligible for other government scholarships or interest subvention schemes will receive a 3% interest subvention. The interest subvention will apply to loans up to ₹10 lakh during the moratorium period.
- Annual Support:** Each year, interest subvention support will be given to 1 lakh students.
- Preference Criteria:** Preference will be given to students from government institutions. Priority will be given to students pursuing technical and professional courses.

### PM-Vidyalaxmi

Collateral-free, Guarantor-free Education Loans

Maximising access to quality Higher Education for **Yuva Shakti**



Total outlay ₹ 3600 Crore



Financial assistance to meritorious students securing admission in top **860 HEIs of India**



Benefitting **22 Lakh+** new students every year

### Eligibility of Institutions:

- The scheme will cover institutions ranked in the top 100 in the National Institutional Ranking Framework (NIRF) in both overall and domain-specific categories.
- It will also apply to state-run institutions ranked 101-200 and all central government-run institutions.
- A total of 860 higher education institutions will be eligible, with the list updated annually based on NIRF rankings.
- Eligibility for All Courses:** Unlike previous schemes, this scheme will be available for students enrolled in all types of courses, not just technical or professional ones.

### About Existing Schemes:

- This scheme is in addition to the existing Central Sector Interest Subsidy (CSIS), which offers full interest subvention on loans up to ₹10 lakh for

students with an annual family income of up to ₹4.5 lakh, pursuing technical or professional courses.

### Positive Aspects of PM-Vidyalaxmi Scheme:

- **Increased Accessibility:** Collateral-free and guarantor-free loans make higher education more accessible to students from economically weaker backgrounds, removing barriers to education financing.
- **Encourages Meritocracy:** By offering loans to students admitted to Quality Higher Education Institutions (QHEIs), the scheme promotes merit-based education, encouraging talented students to pursue higher studies.
- **Reduced Financial Burden:** The absence of collateral and guarantee requirements alleviates the financial stress on students and their families, making it easier to afford education.
- **Boosts Enrollment:** The scheme is expected to increase enrollment rates in higher education institutions by offering financial support, especially to those from economically disadvantaged backgrounds.

## SC Overturns 1967 Ruling on AMU Minority Status

### Why in News:

In a landmark legal decision, the Supreme Court of India has overturned its 1967 ruling that denied Aligarh Muslim University (AMU) the status of a minority institution. This 4-3 majority verdict marks a significant shift in the interpretation of Article 30 of the Indian Constitution, which guarantees minorities the right to establish and administer educational institutions.

### Background of the Case

- **Founding of AMU:**
  - » **1877:** The institution was founded as the Muhammadan Anglo-Oriental College by Sir Syed Ahmed Khan, aiming to promote modern education among the Muslim community in India, while preserving Islamic values.
  - » **1920:** The college was upgraded to Aligarh Muslim University (AMU) under the Aligarh Muslim University Act, enacted by the British government.

### The 1967 Supreme Court Ruling:

- **1967:** The Supreme Court ruled that AMU was not a minority institution. The Court stated that because the university was established by a statute (the AMU Act), and not solely by the Muslim community, it did not qualify for the protections under Article 30 of the Constitution.
- This decision effectively denied AMU the autonomy that minority institutions typically enjoy, including exemption from certain reservation requirements.
- **Subsequent Developments:**
  - » **1981:** In an effort to address the issue, an amendment was made to the AMU Act, stating that the university was established by the “Muslims of India”. However, the Allahabad High Court struck down this amendment in 2005, declaring that it still did not confer minority status on AMU.

### The Recent Supreme Court Ruling:

- **Overturning the 1967 Decision:** The Supreme Court has overturned its 1967 decision, recognizing that AMU’s can claim minority institution status based on its historical context, founding purpose, and significant contributions to Muslim education in India.
- **New Test for Minority Status:** The Court established a new test to determine whether an educational institution can claim minority status under Article 30. This test focuses not just on the legal manner of the institution’s establishment, but also on its founding intent and its historical and cultural significance.
- Educational institutions with a strong historical and cultural connection to a particular community (like AMU’s connection to the Muslim community) may now be eligible to claim minority status, even if they were established through a government act or by a broader group.

### Implications of the Ruling

- **Final Determination of AMU’s Status:** While the Supreme Court has ruled that AMU can claim minority status, the final determination of its exact status will be made by a separate bench in subsequent proceedings.
- This ruling provides a legal foundation for AMU to assert its minority institution status, but the specifics of its entitlement will be clarified through further legal proceedings.

## Accessibility for Disabled Persons: A Human and Fundamental Right – Supreme Court

### Why in News:

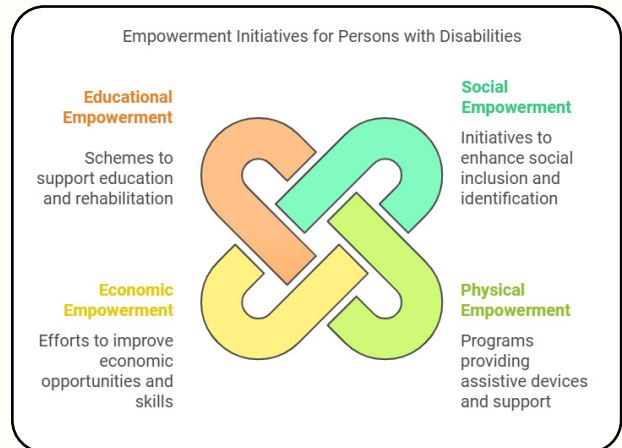
The Supreme Court of India recently delivered a landmark judgment establishing accessibility for Persons with Disabilities (PWDs) as a fundamental human right. The judgment emphasizes the critical need for inclusive spaces, services, and products that enable PWDs to participate fully and equally in society.

### Key Legal and Constitutional Aspects of the Judgment:

- **Accessibility as a Fundamental Right:**
  - » The Supreme Court reinforced that accessibility is an inherent part of the fundamental rights guaranteed under the Indian Constitution.
  - » The right to accessibility is essential to ensuring the right to life with dignity (Article 21), right to equality (Article 14), and right to non-discrimination (Article 15) for Persons with Disabilities.
- **Social Model of Disability:**
  - » The Court adopted the social model of disability, which asserts that disability is caused by societal and environmental barriers, rather than being an inherent condition of the person.
  - » The Court called for systemic changes to remove these barriers and shift the focus from “fixing” individuals to transforming society to be more inclusive.
- **Universal Design as a Constitutional Mandate:**
  - » The Chief Justice directed that public and private spaces, services, and products be designed with universal accessibility in mind, ensuring that they are usable by everyone, regardless of their ability, age, or status.
  - » This directive aligns with the Directive Principles of State Policy (Part IV of the Constitution), which promotes inclusive growth and social justice for marginalized groups like Persons with Disabilities.
- **Mandatory Standards for Accessibility:**
  - » The Court ordered the government to issue mandatory accessibility standards within three months, recognizing that existing guidelines

under the Rights of Persons with Disabilities (RPWD) Rules were not binding and had led to poor compliance.

- » Mandatory standards are essential to ensure that both public and private sectors adhere to uniform accessibility norms across the country.



### Emotional and Relational Rights of PWDs:

- The Court highlighted the emotional and relational rights of persons with disabilities, including their right to love, intimacy, privacy, and self-expression.
- It criticized the neglect of these aspects and emphasized that PWDs should have access to private spaces to meet their emotional and relational needs, especially those living with families.

### Implications of the Judgment:

- The Court referenced examples from cities like Delhi and Mumbai, where accessibility has been incorporated in public transportation and newer facilities.
- The judgment is likely to lead to a national effort to retrofit older buildings and public spaces to meet modern accessibility standards.
- However, states like Tamil Nadu were noted to have significant gaps in accessible transport. The judgment is expected to encourage state governments to expand accessible transportation networks, ensuring PWDs have safe and reliable mobility options.
- The Court emphasized that accessibility should be integrated at the design stage, rather than being added later as an afterthought. This principle should apply to public buildings, digital platforms,



and service offerings, encouraging planners, architects, and service providers to prioritize accessibility from the start.

## India's First All-Women Battalion in the Central Industrial Security Force

### Why in News:

In a landmark move to promote gender equality and empower women, the Union Government of India has approved the creation of the first-ever all-women battalion within the Central Industrial Security Force (CISF).

### About All-Women Reserve Battalion:

- **Formation and Leadership:**
  - » The battalion will consist of 1,025 female personnel, selected from the existing CISF workforce, which totals about 1.8 lakh personnel.
  - » It will be led by a senior officer of the rank of Commandant, ensuring leadership and discipline comparable to other CISF units.
  - » The battalion will be part of CISF's reserve battalion structure, designed to assist in high-security tasks and major national events, such as elections.
- **Training and Preparedness**
  - » The battalion's training program will be intensive and specialized to equip personnel for high-risk security duties, including VIP protection, airport security, and counter-terrorism operations.
  - » Female personnel will be trained as elite commandos, ensuring they can handle security challenges with the same proficiency as their male counterparts.
- **Roles and Responsibilities:** The battalion will primarily focus on high-profile security operations, including:
  - » VIP protection and high-risk security environments.
  - » Safeguarding airports, metro stations, and other sensitive installations such as nuclear plants and aerospace facilities.

### Why is this move significant?

- **Empowering Women in Security Forces:**

- » The formation of the all-women battalion addresses the gender imbalance within the CISF, where women currently make up only 7% of the total personnel.
- » This initiative encourages more women to join the CISF, empowering them to take on critical national security roles.
- **Encouraging Gender Inclusivity:**
  - » The Mahila Battalion (Mahila meaning "women" in Hindi) represents a concrete step toward gender inclusivity in national security forces.
  - » It breaks traditional gender barriers, setting a precedent for future generations of women to follow in security and law enforcement roles.
- **Reflecting Changing Dynamics of National Security:**
  - » The creation of an all-women battalion reflects the changing role of women in national security, where women are increasingly taking on more challenging and visible roles.
  - » This is a clear acknowledgment of the growing capabilities and leadership skills of women in security operations, both at the operational and strategic levels.



### About CISF:

- **Evolution of CISF:**
  - » CISF was established in 1969 to safeguard critical infrastructure, such as airports, nuclear power plants, and aerospace facilities.
  - » Over the years, the force has grown to handle increasingly complex security challenges, adapting to national needs.
- **Role of Reserve Battalions:**
  - » Currently, CISF operates 12 reserve battalions, composed of both male and female personnel. These battalions are typically deployed for duties like election security, protecting government buildings, and large-scale public events.
  - » However, the all-women battalion will be a specialized unit focused on high-security

operations, particularly VIP security, and safeguarding sensitive national infrastructure.

## Operation Dronagiri

### Why in News:

India took a significant step towards revolutionizing its governance and economic landscape with the launch of Operation Dronagiri at the Indian Institute of Technology (IIT) Delhi. This pilot initiative is a critical component of the National Geospatial Policy 2022 (NGP 2022) and showcases the transformative potential of geospatial technologies to improve public services, drive innovation, and foster economic growth. Geospatial data is time-based data that is related to a specific location on the Earth's surface.

### Key Highlights of Operation Dronagiri

- **Launch**
  - » **Date:** November 13, 2024
  - » **Location:** IIT Delhi's Foundation for Innovation and Technology Transfer (FITT)
  - » **Goal:** To demonstrate the transformative potential of geospatial technologies across agriculture, livelihoods, and logistics & transport, and to streamline business operations.
- **Integration of Geospatial Data**
  - » Operation Dronagiri aims to integrate geospatial data into public services, enhancing the quality of life for citizens and improving the ease of doing business.
  - » **Focus Areas:** Agriculture, Livelihoods, and Logistics & Transport.
- **Pilot Phase Implementation**
  - » The first phase will be rolled out in five states: Uttar Pradesh, Haryana, Assam, Andhra Pradesh, and Maharashtra.
  - » These states were chosen for their diverse geographical and socio-economic conditions, making them ideal testing grounds for the pilot.
- **Partnerships and Collaborations**
  - » The project will involve collaborations with government departments, industries, corporations, and startups to test real-world applications of geospatial data.
  - » These partnerships aim to demonstrate the practical benefits of geospatial data integration

and its impact on public services.

### Introduction of the Integrated Geospatial Data Sharing Interface (GDI):

- A cornerstone of Operation Dronagiri is the launch of the Integrated Geospatial Data Sharing Interface (GDI), a platform designed to facilitate seamless sharing, access, and analysis of geospatial data.
- **Purpose of GDI:**
  - » The GDI will unlock actionable insights from geospatial data, helping to drive better decision-making for public governance, business strategies, and research.
  - » It will promote greater collaboration among stakeholders across various sectors.
- **Key Features of GDI**
  - » **Data Exchange:** GDI ensures secure and efficient exchange of geospatial data using advanced data exchange protocols.
  - » **Privacy and Security:** The platform integrates privacy-preserving features, safeguarding sensitive data while enabling collaboration.
  - » **Impact:** The GDI will enhance disaster management, improve urban infrastructure, and monitor environmental changes with better coordination across various agencies.

### What is National Geospatial Policy 2022?

- The National Geospatial Policy 2022 (NGP 2022) aims to make India a global leader in geospatial technology by developing infrastructure, fostering innovation, and creating an ecosystem for data sharing.
- **Vision and Goals:**
  - » To position India as a world leader in the geospatial sector by 2030, fostering innovation and creating a thriving geospatial ecosystem.
  - » Focus on digitalization, improving service delivery, and promoting the liberalization of the geospatial sector.
- **Institutional Framework:**
  - » The Geospatial Data Promotion and Development Committee (GDPDC) will play a central role in formulating strategies for the geospatial sector's growth and ensuring the implementation of NGP 2022.

### Milestones Toward Realization:

- By 2025, put in place a policy framework that supports the liberalization of the geospatial sector.
- By 2030, achieve high-resolution topographical

- surveys and mapping for urban and rural areas.
- By 2035, develop a National Digital Twin of cities, enabling dynamic decision-making.

## AFSPA Reimposed in Key Areas of Manipur

### Why in News:

The escalating ethnic violence in Manipur has prompted the Ministry of Home Affairs (MHA) to reimpose the Disturbed Area status in six police station areas across the state's valley regions under the Armed Forces (Special Powers) Act (AFSPA). This move reflects the continued instability in Manipur, a year and a half after the onset of violent ethnic clashes between the Meitei and Kuki-Zomi communities.

### Key Areas Affected by AFSPA Reimposition

- The following police station areas in Manipur's valley regions have been brought back under AFSPA:
  - » Sekmai (Imphal West)
  - » Lamsang (Imphal West)
  - » Lamlai (Imphal East)
  - » Moirang (Bishnupur)
  - » Leimakhong (Kangpokpi)
  - » Jiribam (Jiribam District)
- These areas were initially part of a gradual withdrawal process from AFSPA in 2022-2023, but recent violence and tensions have prompted the reimposition of the law.

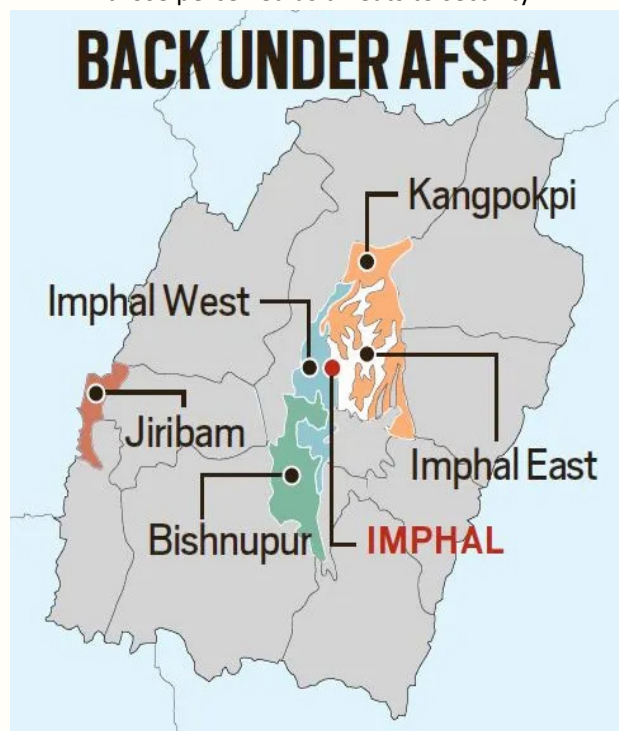
### Reasons Behind the AFSPA Reimposition

- Violent Clashes:** There have been frequent firing incidents, violent clashes, and attacks attributed to insurgent groups in the affected regions.
- Insurgent Activity:** Insurgent groups have reportedly played a key role in perpetrating violence, including bombings, armed attacks, and ambushes against security forces and civilians.
- High-Tension Districts:** The regions of Bishnupur-Churachandpur, Imphal East-Kangpokpi-Imphal West, and Jiribam remain particularly volatile, with continuing ethnic violence fueling insecurity.

### Implications of AFSPA and the Disturbed Area Status

- The Armed Forces (Special Powers) Act (AFSPA) grants the Indian Armed Forces extensive powers in disturbed areas:

- » **Immunity from Prosecution:** Military personnel are granted immunity from prosecution unless authorized by the Central Government.
- » **Arrest and Search Powers:** Security forces can arrest individuals without warrants and search premises without legal formalities.
- » **Use of Deadly Force:** The law authorizes the use of deadly force to maintain order, including shooting suspected insurgents or those perceived as threats to security.



### Duration:

- The Disturbed Area status under AFSPA is valid for six months and can be extended based on ongoing security reviews.
- In Manipur, AFSPA has been in effect since 1980, and its withdrawal in 2022-2023 was initially viewed as a sign of improved security. However, recent ethnic violence has led to its reintroduction.

## Supreme Court Upholds 'Socialist' and 'Secular' in Preamble

### Why in News:

The Supreme Court of India recently upheld the



inclusion of the terms 'socialist' and 'secular' in the Preamble of the Indian Constitution. The ruling dismissed challenges to the 42nd Amendment of 1976, which inserted these terms during the Emergency imposed by Prime Minister Indira Gandhi's government.

### Key Terms:

- **Secularism:**
  - » Initially not included in the Constitution, the term 'secular' refers to a state that neither supports nor penalizes any religion.
  - » **Constitutional Basis:** Articles 14, 15, and 16 guarantee equality before the law and prohibit discrimination based on religion, race, caste, sex, or place of birth.
- **Socialism:**
  - » In the Indian context, 'socialist' does not refer to a specific economic structure but signifies the state's commitment to welfare and social justice.
  - » Socialism does not restrict economic policies but reflects the goal of promoting equality and uplifting marginalized sections of society.

### Ruling on Constitutional Amendments:

- **Article 368:** The Court upheld that Parliament's power to amend the Constitution, including the Preamble, is unquestionable and includes the ability to modify its provisions as needed over time.
- **Dynamic Constitution:** The inclusion of 'socialist' and 'secular' in 1976 was a reflection of the Constitution's ability to evolve to meet the nation's socio-political needs.
- **Retrospective Amendment:** The Court rejected the argument that these terms could not be retrospectively included due to the cut-off date of November 26, 1949. The date of adoption does not limit Parliament's power to amend the Constitution.

### Impact on Governance and Policy:

- **Socialism and Economic Policy:** The ruling emphasized that socialism in India does not inhibit private enterprise or market-oriented policies. It ensures economic justice and equality, benefiting all citizens.
- **Secularism and Religious Freedom:** While ensuring freedom of religion, secularism also allows the government to address harmful religious

practices that may hinder national development. The ruling supports the promotion of a Uniform Civil Code (UCC), as encouraged under Article 44 of the Directive Principles of State Policy.

### Future Implications:

- **Settling the Debate:** The Supreme Court's ruling settled the debate over the inclusion of 'socialist' and 'secular' in the Constitution, reinforcing Parliament's power to amend the Constitution as necessary.
- **Evolution of Secularism and Socialism:** The judgment highlights the evolution of Indian secularism and socialism, aligning with India's democratic, pluralistic, and welfare-oriented goals.
- **Flexible Constitution:** The Court's decision affirms that the Constitution is a living document, capable of addressing new challenges while upholding fundamental rights and promoting social justice.
- **Potential for Legislative Reforms:** This judgment could propel future reforms, including the Uniform Civil Code, focusing on equality and non-discrimination for all citizens, regardless of their faith or background.

## Pennaiyar River Water Sharing Dispute

### Why in News:

Water disputes between Indian states are common, especially when rivers flow across multiple regions. The ongoing dispute between Tamil Nadu and Karnataka concerns the sharing of the Pennaiyar River water. The Supreme Court recently directed the Union government to submit the report of the Negotiation Committee formed to mediate the dispute.

### What is the Pennaiyar River?

- The Pennaiyar River (also known as Ponnaiyar) is a vital river in southern India, flowing primarily through Karnataka and Tamil Nadu.
- It originates from the Nandi Hills in Karnataka and flows southward into Tamil Nadu before draining into the Bay of Bengal.
- The river provides crucial water resources for agriculture, drinking, and irrigation, particularly in Tamil Nadu, where it supports the irrigation needs of districts like Chennai, Vellore, and Cuddalore.



### The Legal Dispute:

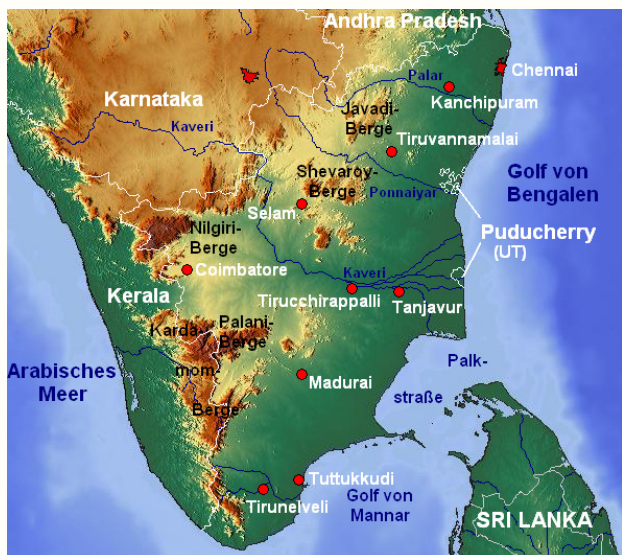
- The dispute began in 2018, when Tamil Nadu filed a case before the Supreme Court, accusing Karnataka of constructing check dams and diversion structures on the river.
- Tamil Nadu claimed that these projects obstructed the flow of water to its own territories, particularly during drought periods.

### Tamil Nadu's Argument:

- The state cited an 1892 agreement between the princely states of Mysore (now Karnataka) and Madras (now Tamil Nadu) regarding water sharing.
- Tamil Nadu argued that this agreement was still valid and binding on both states.

### Karnataka's Argument:

- Karnataka contested the relevance of the 1892 agreement in modern times, asserting its right to construct diversion structures for its needs.



### About Agreement of 1892:

- **Prior Consent:** The Mysore Government must

obtain prior consent from the Madras Government before constructing any new irrigation reservoir or anicut.

- **Full Information:** The Mysore Government must provide full information regarding the proposed work to the Madras Government.
- **Protection of Prescriptive Rights:** The Madras Government can refuse consent only to protect prescriptive rights (existing water rights).
- **New Irrigation Works:** The agreement applies to new irrigation works across rivers, including reservoirs and anicuts.

### Mediation Efforts and the Role of the Union Government

- To resolve the dispute, the Union government facilitated negotiations between Tamil Nadu and Karnataka.
- The Supreme Court directed the Union government in January 2024 to form a Negotiation Committee under Section 4 of the Inter-State River Water Disputes Act of 1956.
- The Negotiation Committee is tasked with finding a resolution to the dispute by mediating between the two states.
- The court has now given the Union government two weeks to submit the Negotiation Committee's report.

## National Counter-Terrorism Policy

### Why in News:

The Ministry of Home Affairs (MHA), led by Union Home Minister Amit Shah, is set to introduce a National Counter-Terrorism Policy to strengthen India's fight against terrorism. The policy aims to improve coordination between Central and state agencies, enhance counter-terrorism (CT) units, and establish specialized units in all states and Union Territories (UTs).

### Key Components of the Policy:

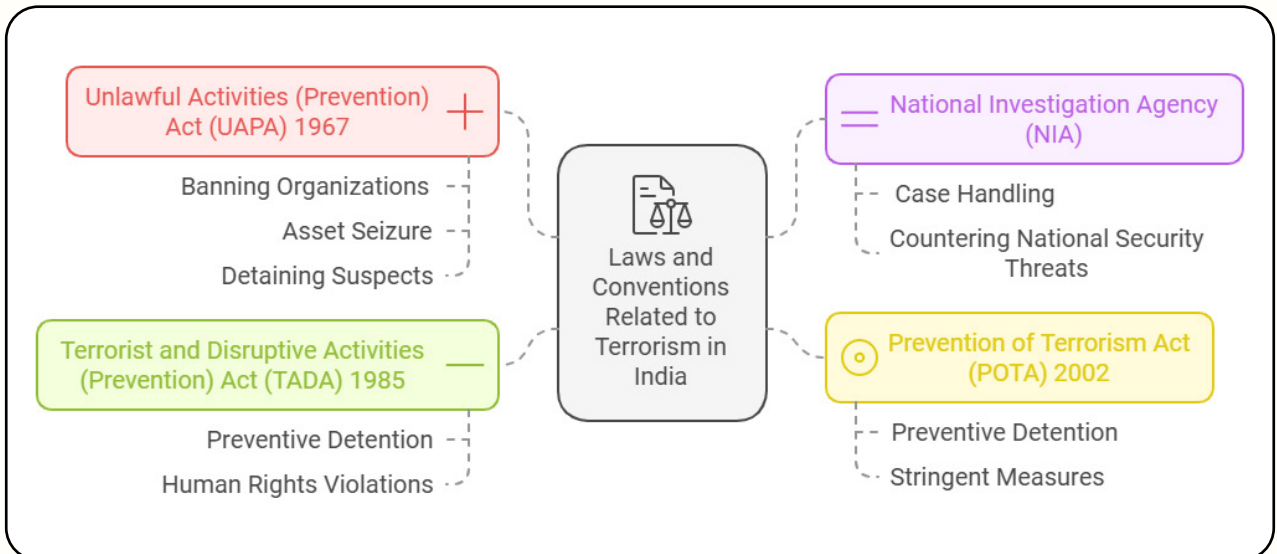
- **Uniform Specialized Terror Units:** Every state and Union Territory (UT) must have dedicated counter-terrorism units, equipped and staffed to address regional terrorism challenges effectively.
- **Key Sub-Units:**
  - » **Prison Monitoring:** Monitors terrorist activities within prisons.

- » **Language Experts:** Ensures effective communication, especially in linguistically diverse areas.
- » **Deradicalization:** Focuses on rehabilitating radicalized individuals.
- » **Financial Intelligence:** Tracks and disrupts terrorist financing.
- **Upgraded Weapons:** Units will be equipped with advanced weapons recommended by the NSG to handle modern threats.
- **Standardized Training:** All units will follow a common training module set by the NSG to ensure uniformity and coordination.
- The policy aims to establish well-coordinated, well-equipped, and trained units across India to combat terrorism effectively.

### Laws and Conventions Related to Terrorism in India

India has enacted several laws to combat terrorism:

- **Unlawful Activities (Prevention) Act (UAPA) 1967:** Allows the government to ban terrorist organizations, seize assets, and detain suspects.
- **National Investigation Agency (NIA):** Established in 2008 to handle terrorism-related cases and counter national security threats.
- **Prevention of Terrorism Act (POTA) 2002:** Repealed in 2004, this law allowed preventive detention and stringent measures.
- **Terrorist and Disruptive Activities (Prevention) Act (TADA) 1985:** Repealed in 1995, this law allowed preventive detention but was criticized for human rights violations.



### Current Status of Specialized Units:

- 18 States/UTs have dedicated ATS, STF, or counter-terrorism units.
- 13 States/UTs have these units recognized as police stations.
- Unit sizes range from 80 to 650 personnel, depending on regional threats.

### What is Terrorism?

- Terrorism is the unlawful use of violence, intimidation, or threats against civilians to achieve political, ideological, or religious goals. It targets non-combatants to instill fear and disrupt societies, with acts including bombings, assassinations, hijackings, and attacks on infrastructure.

### International Conventions

India is a signatory to key international treaties:

- **UN Terrorism Conventions:** Includes conventions on terrorist financing and nuclear terrorism.
- **Hague and Montreal Conventions:** Focus on criminalizing aircraft hijacking and aviation security threats.

### Role of International Bodies

- **Interpol:** Facilitates cross-border police cooperation and intelligence sharing.
- **FATF:** Promotes global measures against terrorist financing.

## Telecommunications (Telecom Cyber Security) Rules, 2024

### Why in News:

The Telecommunications (Telecom Cyber Security) Rules, 2024 have been issued under the Telecommunications Act, 2023, replacing the Prevention of Tampering of the Mobile Device Equipment Identification Number Rules, 2017. The rules are designed to strengthen cybersecurity within the telecom sector and address emerging security challenges.

### Key Provisions of the Rules:

- **Telecom Cyber Security:** Refers to the protection of telecommunication networks and services using policies, tools, and techniques to safeguard against cyber risks.
- **Telecommunication Entity:** Any person or organization involved in providing telecommunication services or maintaining telecom networks.
- **Security Incident:** An event or occurrence that could potentially impact the security of telecom services or networks.

### Data Collection and Sharing:

- The Central Government or designated agencies may request traffic data and other related information from telecom entities.
- Such data can be shared with law enforcement agencies and other telecom entities for security purposes.
- Telecom entities are required to set up the necessary infrastructure to facilitate data collection, processing, and storage from designated points.

### Obligations for Individuals and Entities:

- **Individuals:**
  - » No person is allowed to send messages or perform actions that could adversely impact telecom cybersecurity.
- **Entities:**
  - » Telecommunication entities must develop and implement cybersecurity policies to address risks, conduct audits, and manage incident responses.
  - » They must establish Security Operations Centres (SOCs) to monitor and respond to security incidents like intrusions.
  - » A Chief Telecommunication Security Officer

(CTSO) must be appointed by entities to oversee telecom cybersecurity efforts. The CTSO's details must be provided to the Central Government.



### Incident Reporting:

- **Timeframe for Reporting:** Telecom entities are required to report any security incidents to the Central Government within 6 hours of becoming aware of the incident.
- Within 24 hours, entities must provide detailed information, such as:
  - » The number of users affected.
  - » Duration and geographical area of the incident.
  - » Measures taken to address the issue.

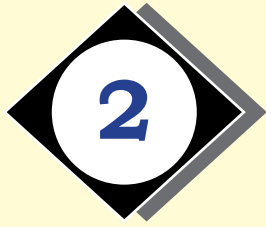
### Penalties and Enforcement:

- While penalties for misuse or failure to comply are not explicitly mentioned, the rules focus on the establishment of a security framework and accountability mechanisms for telecom entities.

### Impact of the Rules:

- The new rules aim to enhance cybersecurity in India's telecom sector by ensuring swift response to security incidents and establishing comprehensive measures for data protection and incident management.
- However, these rules also grant significant power to the government to access telecom data, potentially raising concerns around privacy and data security.





# International

## India-U.S. Relations: Opportunities & Challenges under a Second Trump Administration

Donald Trump was recently reelected as the U.S. President, beginning his second term with significant implications for India-U.S. relations. The personal rapport between Prime Minister Modi and President Trump, demonstrated through events like the "Howdy, Modi!" and "Namaste Trump" rallies, reflects alignment in leadership style and policy. Both leaders prioritize strong governance, economic nationalism, and protectionism, alongside a pragmatic, transactional foreign policy approach. These shared priorities provide a foundation for deeper cooperation in defense, technology, and counterterrorism. As Trump's second term unfolds, these common objectives are expected to continue shaping the trajectory of India-U.S. relations, influencing both nations' foreign and economic policies.

### Significance of India-U.S. Relations

❖ India and the U.S. share a strategic partnership that has evolved over decades. As the world's largest democracies, they have common values and mutual interests, particularly in global stability, counterterrorism, and economic growth. India's growing economic influence and the U.S.'s global leadership make them crucial partners in addressing global challenges such as climate change, security threats, and trade imbalances.

### Strategic Dimensions of India-U.S. Relations:

❖ **Shared Strategic Interests:** India and the U.S. are motivated by common strategic goals:

- » **Defense and Security Cooperation:** Trump's "America First" policy aims to reduce U.S. military involvement abroad, presenting India with an opportunity to take a more prominent role in regional security. This

includes joint military exercises, arms deals, and access to advanced U.S. military technology.

» **Indo-Pacific Stability and Counterterrorism:** Both countries face common security threats and are committed to maintaining stability in the Indo-Pacific region. Cooperation on counterterrorism, maritime security, and intelligence sharing is likely to increase.

» **China Containment:** Both nations share concerns about China's growing influence. This alignment offers opportunities for deeper cooperation to counter China's military and economic dominance in the region.

❖ **Geopolitical Balancing:** Trump's unpredictable foreign policy requires India to balance its strategic partnership with the U.S. while managing relations with other global powers like China and Russia. This balancing act will be key to maintaining India's strategic interests.

### Economic Dimensions of Trump 2.0 Policies:

**Trade Relations: Opportunities and Challenges:** Trump's "America First" stance focuses on reducing trade imbalances and promoting U.S. industries. Key aspects of the trade relationship between India and the U.S. include:

❖ **Tariffs and Trade Barriers:** Trump's protectionist policies in his first term included tariffs on Indian goods like steel, aluminum, and textiles. This could continue or even escalate under Trump 2.0, challenging Indian exporters. The U.S. may push India for greater market access in agriculture, intellectual property, and services.

❖ **Free Trade Agreement (FTA):** Despite stalled discussions in Trump's first term, there is hope

for renewed FTA negotiations. While an FTA could boost bilateral trade, India will need to balance U.S. demands for market access and intellectual property protections with its domestic priorities.

- ❖ **Manufacturing and Supply Chain Diversification:** Trump’s push to reshore manufacturing to the U.S. presents an opportunity for India. As U.S. companies seek alternatives to China, India’s labor force, low production costs, and improving infrastructure make it an attractive destination for American firms. The rise of Global Capability Centers (GCCs) in India reflects this trend.
- ❖ **Impact of the Production-Linked Incentive (PLI) Scheme:** India’s PLI scheme, aimed at boosting domestic manufacturing, positions India to attract U.S. investments. These reforms offer incentives for U.S. firms to expand operations in India, fostering job creation and economic growth.

the flow of professionals to the U.S.

- ❖ **Deportations and Legal Migration:** Trump’s hardline stance on illegal immigration may not directly impact legal Indian migrants but could create uncertainty for the Indian diaspora, especially regarding deportations and migration policies.

### Energy and Climate Policy Implications

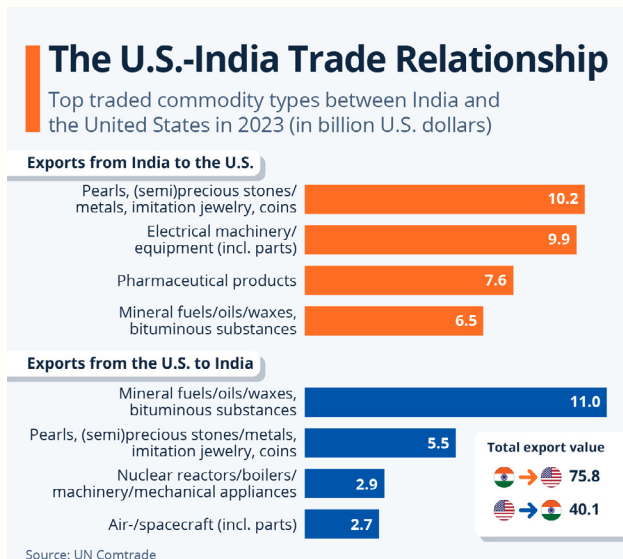
- ❖ **Energy Import Benefits:** As a major oil importer, India could benefit from Trump’s policies that lower global oil prices due to U.S. fossil fuel production. This could reduce India’s import bill and improve energy security.
- ❖ **Challenges for Climate Change Initiatives:** Trump’s skepticism about climate change and his withdrawal from the Paris Agreement are concerning for India, which is vulnerable to climate impacts. India is pursuing sustainable development goals, and Trump’s stance could slow global efforts to address climate change, affecting India’s climate adaptation strategies.

### Global and Regional Implications

- ❖ **Impact on Global Trade and Supply Chains:**
  - » **Opportunities for India:** With the ongoing U.S.-China trade tensions, American firms may seek to diversify supply chains away from China. India, with its large consumer market and favorable policies like the PLI scheme, is positioned as an attractive alternative for U.S. companies looking to expand in Asia.
  - » **Challenges for India:** However, global trade tensions could disrupt India’s trade relationships, requiring careful navigation of its partnerships with the U.S., China, and other global players. The risk of trade skirmishes could complicate India’s economic growth and stability.
- ❖ **Geopolitical Considerations:** Trump’s foreign policy, characterized by unpredictability, will require India to carefully manage its relationships with both the U.S. and other powers, including Russia and China. India’s challenge will be to balance its engagement with the U.S. while maintaining strategic ties with these nations.

### Conclusion:

Trump’s second term presents both opportunities



### Immigration and Workforce Challenges:

- ❖ Trump’s strict immigration policies could impact India’s IT sector and the broader workforce in the U.S. under Trump 2.0:
- ❖ **H-1B Visa Restrictions:** The H-1B visa program, crucial for Indian professionals, may face stricter regulations, making it harder for skilled Indian workers to obtain U.S. work permits. This could affect India’s IT sector, which relies heavily on

and challenges for India. His protectionist trade policies, stricter immigration laws, and skepticism about climate change could pose hurdles for India's economic and geopolitical aspirations. However, opportunities for collaboration in defense, technology, and regional stability could strengthen the India-U.S. partnership. India's ability to navigate these challenges will depend on its strategic diplomacy, economic reforms, and adaptability. By leveraging its growing economy, strategic

importance, and initiatives like the PLI scheme, India can deepen its partnership with the U.S. while balancing its relations with other global powers. As the world's largest democracies, India and the U.S. have the potential to build a robust and resilient partnership, but this will require careful navigation of the evolving global and regional dynamics under Trump 2.0.

## Short Issues

### U.S., Japan, and South Korea Collaborate on Digital Infrastructure in India

#### Why in News:

Recently, the United States, Japan, and South Korea announced a significant initiative aimed at enhancing digital infrastructure in India. This collaboration, known as the Digital Infrastructure Growth Initiative for India (DiGi Framework), seeks to streamline processes for strategic digital infrastructure projects, thus promoting economic growth and development in the region.

#### Key Partners of the framework:

- The DiGi Framework is a collaborative effort involving three key organizations:
  - » U.S. International Development Finance Corporation (DFC)
  - » Japan Bank for International Cooperation (JBIC)
  - » Export-Import Bank of Korea (Korea Eximbank)
- These institutions are committed to leveraging their resources and expertise to support the digital infrastructure needs of India.

#### Key Focus Areas of the framework:

- The framework outlines several critical focus areas for investment and development, including:
  - » 5G Technology
  - » Open RAN
  - » Submarine Cables
  - » Optical Fiber Networks
  - » Telecom Towers

- » Data Centers
- » Smart Cities
- » E-commerce
- » Artificial Intelligence (AI)
- » Quantum Technology

- These sectors are crucial for advancing India's digital landscape and ensuring sustainable economic growth.



#### Core aspects:

- A core aspect of the DiGi Framework is its emphasis on collaboration with the Indian private sector. By working together, the framework aims to address the pressing infrastructure needs of India while promoting effective policy dialogues.
- This approach will encourage private funding for digital projects, making it easier for private sector stakeholders to engage in infrastructure development.

#### Strategic Objectives:

- The DiGi Framework aligns with the goals established during the U.S.-Japan-Republic of Korea trilateral summit. Its aim is to enhance

cooperation and shared priorities among the three nations, ultimately benefiting India's digital landscape and economic growth.

### Commitment to India:

- Through the DiGi Framework, DFC, JBIC, and Korea Eximbank demonstrate their dedication to partnering with India. By harnessing private sector resources, these organizations aim to promote high-quality investments in digital infrastructure, supporting India's development agenda.

### About Digital infrastructure:

- Digital infrastructure refers to the digital technologies that provide the foundation for an organization's information technology and operations. India's digital infrastructure has made tremendous progress under the Digital India Programme.

### Key initiatives:

- **Digital Identity:** Aadhaar, a 12-digit biometric and demographic-based identity, has enrolled over 135.5 crore residents, providing a unique, lifelong, online, and authenticable identity.
- **Digital Services:** Common Services Centres (CSCs) offer over 400 digital services in rural areas through Village Level Entrepreneurs (VLEs), with 5.21 lakh CSCs functional across the country .
- **Digital Locker:** DigiLocker has over 13.7 crore users, with more than 562 crore documents available from 2,311 issuer organizations .
- **Digital Signatures:** e-Sign facilitates instant signing of forms/documents online, with over 31.08 crore e-Sign issued by all agencies .
- **Digital Villages:** The Digital Village Pilot Project covers 700 Gram Panchayats/Villages, offering digital health, education, financial services, and skill development .
- **e-District Services:** The National Rollout of eDistrict MMP provides 4,671 e-services in 709 districts across India .( all data is updated till December , 2022).

## Brazil's Withdrawal from China's Belt and Road Initiative

### Why in News:

Recently, Brazil officially announced its decision not

to join China's Belt and Road Initiative (BRI), making it the second member of the BRICS bloc, after India, to decline participation in this multi-billion-dollar infrastructure project.

- Brazil's administration expressed a preference for exploring synergies with Chinese investors while prioritizing its own infrastructure projects rather than signing an accession contract with China.

### About the Belt and Road Initiative (BRI):

- The BRI, initially launched as 'One Belt One Road' in 2013, aims to connect Asia with Africa and Europe through land and maritime networks. Its primary objectives include improving regional integration, increasing trade, and stimulating economic growth. The initiative encompasses:
  - » Silk Road Economic Belt: A trans-continental passage.
  - » Maritime Silk Road: A sea route.
- The BRI involves significant investments in various infrastructure projects, including ports and transportation networks.

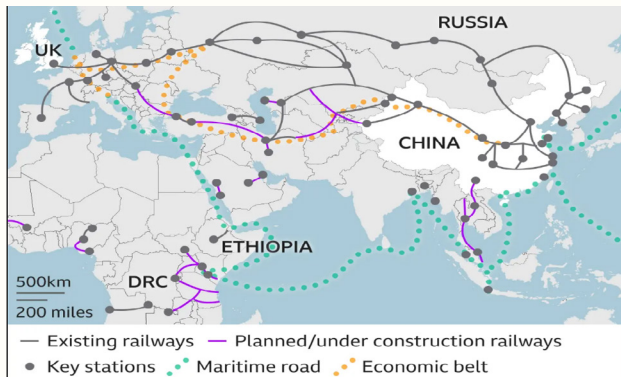
### Key Concerns of India Regarding the BRI:

- **Sovereignty Issues:** The BRI's flagship project, the China-Pakistan Economic Corridor (CPEC), traverses Gilgit Baltistan in Pakistan-occupied Kashmir, which India regards as a violation of its sovereignty.
- **Geopolitical Competition:** The BRI's financial incentives and low-interest loans for infrastructure development may undermine India's influence in South Asia.
- **Debt Sustainability:** Concerns about unsustainable debt burdens incurred by partner countries due to Chinese loans lead to a perception of debt traps, making them vulnerable to China's influence.
- **Security Threats:** China's expanding presence in the Indian Ocean region is viewed by India as a security concern, particularly under the String of Pearls policy.

### Key Steps Taken to Counter BRI:

- Partnership for Global Infrastructure and Investment (PGII) and Build Back Better World (B3W) Partnerships by the G7 group.
- India-Middle East-Europe Economic Corridor (IMEC), launched during India's G-20 Presidency.
- International North-South Transport Corridor (INSTC), connecting the Indian Ocean and Persian Gulf to the Caspian Sea.





### Geopolitical Implications:

- Brazil has joined a growing list of countries, including Italy and the Philippines, that have withdrawn from the Belt and Road Initiative (BRI). While trade relations between Brazil and China are substantial—approximately \$180 billion annually—there is increasing caution within Brazil regarding reliance on Chinese investments.
- Currently, Brazil receives around \$3 billion in Chinese investments each year, prompting a critical reassessment of its economic strategy and regional partnerships.
- This rejection of the BRI aligns with India’s earlier opposition, which raised concerns about sovereignty, potential debt traps, and a lack of transparency in BRI projects. India’s stance was particularly influenced by the China-Pakistan Economic Corridor (CPEC), which traverses Pakistan-occupied Kashmir and poses significant sovereignty issues.
- As Brazil prepares to host the G-20 summit, this decision underscores a shift in its diplomatic approach, prioritizing national interests and regional stability over expansive external influence.

- India-Spain trade relations have shown consistent growth, with Spain as India’s sixth-largest trading partner within the European Union.
- **Total Trade (2023):** USD 8.25 billion, a 4.2% increase from 2022.
- **India’s Exports to Spain:** USD 6.33 billion (growth of 5.2%) in mineral fuels, chemicals, iron and steel, electrical machinery, apparel, and marine products.
- **India’s Imports from Spain:** USD 1.92 billion (growth of 1.05%), primarily in machinery and manufactured goods.
- The India-Spain Joint Commission on Economic Cooperation (JCEC), established in 1972, and the India-Spain CEOs Forum (2015) are key platforms supporting these economic ties. These bodies promote trade and investment, enabling regular dialogue on economic cooperation.



### Foreign Direct Investment (FDI):

FDI forms a crucial part of India-Spain economic relations:

- **Spanish FDI in India:** USD 3.94 billion (April 2000 - December 2023), ranking Spain as India’s 16th largest investor. More than 280 Spanish companies operate across sectors in India, including metallurgy, renewable energy, automotive, and infrastructure, with Maharashtra, Tamil Nadu, and Gujarat as major investment hubs.
- **Indian FDI in Spain:** Nearly USD 900 million, with around 80 Indian companies in Spain, largely in IT, pharmaceuticals, chemicals, and logistics. This makes India one of Spain’s top 30 global investors and among the top 5 from Asia.

### Strategic and Defense Cooperation:

- Defense collaboration has become a critical area of India-Spain relations.

## Strategic Dimensions of India-Spain Relations

### Why in News:

Mr. Pedro Sanchez, the President of the Government of Spain, recently undertook an official visit to India, marking a significant milestone in bilateral relations. This visit not only represents President Sanchez’s inaugural trip to India but also the first visit by a Spanish head of government in 18 years.

### India-Spain Economic and Trade Relations:

- The Final Assembly Line (FAL) plant for the C295 tactical transport aircraft, inaugurated in Vadodara, is India's first private military transport aircraft facility.
- Developed by Tata Advanced Systems Ltd (TASL) in partnership with Airbus Defence and Space, the project will see 40 of 56 C295 aircraft assembled in India under a \$2.5 billion contract.
- The facility will deliver its first "Made-in-India" C295 by 2026, with all deliveries completed by 2031. This project is building a complete aerospace manufacturing ecosystem in India, involving contributions from Bharat Electronics Ltd, Bharat Dynamics Ltd, and several private MSMEs.

### Counter-Terrorism and Cybersecurity:

- India and Spain have ongoing collaborations on counter-terrorism and intelligence sharing, addressing mutual concerns over global security.

### Sustainable Development and Climate Action

- India and Spain both support the Paris Agreement and work together on climate change initiatives. Spain's expertise in renewable energy complements India's goals to expand its green energy sources, particularly solar energy.
- Both countries collaborate under the International Solar Alliance (ISA), with Spain aligning with India's focus on sustainable development.

### Multilateral Cooperation:

- India and Spain share platforms for multilateral engagement:
  - » **United Nations (UN):** Both countries cooperate on global peace, sustainable development, and humanitarian efforts.
  - » **G20:** As members of the G20, India and Spain are committed to tackling global economic issues, climate change, and trade reforms.
  - » **International Solar Alliance (ISA):** Spain's ISA membership strengthens cooperation on solar energy and sustainable initiatives.

### Indian Diaspora in Spain:

- The Indian community in Spain, though relatively small, is growing. As of 2023, approximately 55,000 Indians reside in Spain, contributing to sectors like hospitality, retail, IT, and healthcare, enriching Spanish society.

### Conclusion:

India and Spain's deepening relationship reflects mutual commitments to defense modernization,

economic collaboration, and sustainable growth. The C295 FAL plant in Vadodara signifies a new phase in defense manufacturing and highlights both countries' dedication to creating a resilient, cooperative alliance that benefits both economies.

## Indian Official Meets Afghan Defence Minister, Offers Use of Chabahar Port to Enhance Trade

### Why in News:

In a diplomatic and economic move, an Indian delegation, led by J P Singh, Joint Secretary for the Pakistan-Afghanistan-Iran division in the Ministry of External Affairs (MEA), met with Afghanistan's acting Defence Minister Mullah Mohammad Yaqoob and other senior Afghan leaders in Kabul.

### Key Details of the Meeting:

- **Offer of Chabahar Port:**
  - » India offered Afghan businesses access to Chabahar Port, a strategically important deep-water port in Iran, developed and operated by India.
  - » Chabahar Port is a key gateway for trade between India, Afghanistan, and Central Asia, bypassing Pakistan, thereby enhancing Afghanistan's access to global markets and facilitating imports and exports.
- **Focus on Humanitarian Assistance:**
  - » India's ongoing humanitarian assistance will continue to Afghanistan, despite the political challenges presented by the Taliban.
  - » India has consistently provided wheat, medicines, and medical supplies to Afghan people.

### India's Diplomatic Stance:

- India does not recognize the Taliban regime, which took control of Afghanistan in August 2021. However, it has maintained a functional diplomatic presence in Kabul.
- India's embassy in Kabul remains operational, and a technical team has been stationed since June 2022 to manage humanitarian efforts effectively.

### Chabahar Port's Importance to Afghanistan:

- Chabahar Port, located in Iran's Sistan-Baluchestan province, is central to India's strategy to strengthen

ties with Afghanistan and Central Asia.

- Developed by India as part of a \$500 million investment, Chabahar provides Afghanistan with an alternative route to the sea, bypassing Pakistan.
- It enables the transportation of Afghan goods to international markets, including exports like minerals, agricultural products, and handicrafts. It is also vital for energy supplies to Afghanistan and Central Asia.



## Diplomatic Relations between India and Afghanistan:

- **Historical Context:**
  - » India recognized the Soviet-backed Democratic Republic of Afghanistan in the 1980s and maintained diplomatic ties.
  - » Relations weakened during the 1990s Afghan civil war and the Taliban government.
- **Post-2001 Developments:**
  - » After the US-led invasion of Afghanistan in 2001, India established diplomatic relations with the newly formed democratic government.
  - » India provided aid and reconstruction support to Afghanistan in the years following.

## Recent Developments in India-Afghanistan Relations:

- **Embassy Reopening:** In 2022, India reopened its embassy in Kabul, which had been closed following the Taliban takeover in August 2021.

- **Humanitarian Aid:** India has continued its humanitarian efforts, providing 500,000 Covid vaccine doses and 2,500 MT of wheat to help Afghanistan during the crisis.
- **Infrastructure Development:** India has been involved in several infrastructure projects in Afghanistan, including the construction of:
  - » Salma Dam
  - » Afghan Parliament building
  - » These projects are part of India's ongoing support for Afghanistan's reconstruction and development.
- **Economic Cooperation:** To facilitate bilateral trade, India and Afghanistan have established two air corridors to enhance economic ties and ensure the smooth transport of goods between the two countries.

## Strategic Air Defence Agreement between India and Russia

### Why in News:

India and Russia have taken a major step forward in their defence collaboration by signing a Memorandum of Understanding (MoU) that focuses on air defence technology. This agreement, formalised between Bharat Dynamics Limited (BDL) and Russia's Rosoboronexport.

### Key Highlights of the Agreement

- **MoU for Co-development of Pantsir System:**
  - » Focus on the co-development of a Pantsir-variant air defence system tailored to India's defence needs.
  - » The Pantsir system is a hybrid platform combining missiles and guns to counter various aerial threats.
  - » The Pantsir system offers an effective range of up to 15 kilometers, making it crucial for intercepting missiles, aircraft, drones, and other aerial threats.
- **Strategic Significance for India:**
  - » The partnership will help modernise India's defence architecture, improving self-reliance and capability in countering advanced threats.
  - » This MoU strengthens India's commitment to defence self-reliance while reinforcing its ties with Russia, a key defence partner.


### Broader context:

- The agreement is part of the long-standing strategic

defence partnership between India and Russia, which spans decades and includes joint projects in missiles, naval platforms, and air defence systems.

- Russia has been one of India's principal defence partners, with both countries sharing mutual trust and collaboration on various military technologies.

## India's military trade with Russia



<p><b>MIG-29 FIGHTER JETS</b></p> <p><b>Inducted:</b> 1987 onwards</p> <p><b>Numbers:</b> 60 jets</p> <p>The Indian Air Force is modernising its MiG-29s with long-range missiles, and Hindustan Aeronautics Ltd signed a contract in March to produce RD-33 aero engines for its MiG-29s with significant indigenisation</p>	<p><b>SU-30 MKI</b></p> <p><b>Inducted:</b> 2002 onwards</p> <p><b>Numbers:</b> 260 jets</p> <p>The multirole fighter is the frontline fighter jet of the IAF. They are being built under license by HAL</p> <p><b>SINDHUGHOSH-CLASS ATTACK SUBMARINES</b></p> <p><b>Inducted:</b> 1989 onwards</p> <p><b>Numbers:</b> 7</p> <p>The Soviet Kilo-class diesel-electric submarines have upgraded and refitted from 2014 with Indian participation</p>
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### Focus on Self-Reliance:

- India is increasingly focused on achieving self-reliance in defence manufacturing, aligning with the "Make in India" initiative.
- The MoU with Russia underscores India's efforts to advance indigenous defence production capabilities while maintaining strong international partnerships.

### Strategic Position in the Indo-Pacific:

- Amid rising tensions in the Indo-Pacific region, India's military and strategic partnerships are crucial for safeguarding national security and asserting its role in regional stability.
- As a rising global power, India's strengthened defence capabilities enable it to engage more effectively in global security discussions.

## India – Nigeria Strategic Partnership

### Why in News:

Prime Minister Narendra Modi recently concluded his visit to Nigeria, marking the first trip by an Indian Prime Minister to the country in 17 years.

### Key Takeaways from PM Modi's Visit to Nigeria:

- **Strategic Partnership:** India and Nigeria elevated their relationship to a strategic partnership, with a strong focus on areas such as defense, trade, energy, health, education, and cultural exchange.
- **Humanitarian Aid:** In response to the devastating floods in Nigeria, India announced the provision of 20 tons of humanitarian aid to support flood relief efforts, underlining India's commitment to helping Nigeria during this crisis.
- **Cultural Exchange:** The two countries signed key Memoranda of Understanding (MoUs) on:
  - » Cultural Exchange Programs
  - » Customs Cooperation
  - » Survey Cooperation
 These agreements aim to foster closer ties in both cultural and economic domains.

### Global South Cooperation:

- PM Modi and Nigerian President Tinubu agreed to collaborate on advancing the development aspirations of the Global South, recognizing the shared challenges and opportunities for both nations in shaping a more inclusive global order.

### PM Modi Conferred with Nigeria's Highest Honor:

- PM Modi was awarded Nigeria's highest national honor, the Grand Commander of the Order of the Niger (GCON), in recognition of his efforts to strengthen bilateral relations.

### About India-Nigeria Relations:

- **Historical Relations:** India played a crucial role in supporting African nations' independence movements. India established its diplomatic mission in Africa in 1958, two years before Nigeria gained independence from British rule in 1960.
- **Military and Capacity Building:** Post-independence, India assisted Nigeria in establishing military institutions such as the Nigerian Defence Academy (NDA) and the Naval College at Port Harcourt. Indian training programs under the



Indian Technical and Economic Cooperation (ITEC) initiative have been vital in supporting Nigeria's defense and civilian capacity-building since 1964.



- **Commercial Relations:** Indian businesses have invested approximately \$15 billion in Nigeria, making India Nigeria's leading investor, with a total investment base of around \$20 billion.
- **Oil Trade:** Nigeria is a significant supplier of crude oil to India, although its share has reduced in recent years. In 2020, Nigeria was the fifth-largest seller of crude oil to India.

**India's Role in Africa:**

- India is the third-largest trading partner of Africa, after China and the USA. It accounts for 6.4% of Africa's total trade, and Nigeria is India's third-largest trading partner in Africa as of 2024, after South Africa and Tanzania.
- Nigeria is a significant supplier of crude oil to India, although its share has reduced in recent years. In 2020, Nigeria was the fifth-largest seller of crude oil to India.

**5-Year Strategic Action Plan By India and Italy**

**Why in News:**

On the sidelines of the G20 Summit in Rio de Janeiro, Brazil, Prime Minister Narendra Modi and Italian Prime Minister Giorgia Meloni unveiled a comprehensive five-year Joint Strategic Action Plan for 2025-29.

**Key focus area:**

- This strategic blueprint outlines an ambitious vision for collaboration across key sectors, including defence, trade, energy, space, and technology.

**Defence and Security Cooperation:**

- A major focus of the action plan is strengthening defence ties between India and Italy. The two leaders agreed to hold Joint Defence Consultative meetings and Joint Staff Talks annually, facilitating exchanges of information, joint visits, and training activities.

**Economic and Industrial Cooperation:**

- The action plan envisions robust economic cooperation, particularly through industrial partnerships. Italy and India aim to promote technological collaboration in sectors such as automotive, semiconductors, infrastructure, and advanced manufacturing.

**Connectivity and Infrastructure Development:**

- A key component of the action plan is enhancing connectivity. Both leaders committed to strengthening maritime and land infrastructure, with particular attention to the India-Middle East-Europe Economic Corridor project.

**Space and Scientific Cooperation:**

- One of the most promising areas of collaboration highlighted in the plan is in space exploration. India's Indian Space Research Organisation (ISRO) and Italy's Italian Space Agency (ASI) are set to expand their cooperation in various fields, including Earth observation, heliophysics, and lunar science.



**Energy Transition and Global Cooperation:**

- India and Italy also pledged to strengthen their commitment to global sustainability initiatives. The two countries will work together on energy transition efforts, notably through the Global Biofuels Alliance and the International Solar Alliance.
- These partnerships aim to accelerate the shift to renewable energy sources and reduce the global carbon footprint.

### About India and Italy Relationship:

- Diplomatic relations between India and Italy were established in 1947.
- Indian Prime Minister Jawaharlal Nehru visited Italy in 1953.
- Oscar Luigi Scalfaro, President of Italy, was the first Italian head of state to visit India in February 1995.
- Indian PM paid his official visit to Italy in October 2021 to attend the G20 Summit. In March 2023, the Italian PM paid her first-ever state visit to India as the guest of honour of Raisina Dialogue.
- The relationship between India and Italy was elevated to Strategic Partnership in March 2023 during the visit of the Italian Prime Minister to India.
- A connection was identified between the Indo-Pacific, in which India plays a leading role, and the enlarged Mediterranean where Italy sits at the centre of the Mediterranean Sea and acts as a natural bridge towards the Indo-Pacific.
- Italy is India's 4th largest trading partner in the European Union, after Germany, Belgium, and the Netherlands.
- Bilateral trade crossed US\$ 14.253 billion in 2022-23, with India's exports to Italy at US\$ 8.691 billion.
- India's Department for Science and Technology (DST) and the International Centre for Theoretical Physics (ICTP) in Trieste established the DST-ICTP Ramanujan Prize in Mathematics for developing countries. The 2022 prize was awarded to Prof. Mohamad Moustafa of Senegal.
- The Executive Programme on Cultural Cooperation for the term 2023-2027 was signed in 2023, further strengthening cultural diplomacy.

## Chennai-Vladivostok Maritime Corridor: Strengthening India-Russia Maritime Ties

### Why in News:

Union Minister Dr. Jitendra Singh recently announced the soft launch of the Eastern Maritime Corridor (EMC), which is set to reduce transportation time and distance for goods traveling between Indian and Russian ports, thereby unlocking new trade opportunities. The Chennai-Vladivostok maritime corridor, now operational, marks a significant step forward in enhancing maritime trade between India and Russia.

### Key Features and Benefits:

- **Distance and Duration:** The Chennai-Vladivostok sea route covers approximately 5,600 nautical miles, significantly reducing the current trade route's distance of 8,675 nautical miles from Mumbai to St. Petersburg, Russia.
  - » This new corridor will cut down transportation time by up to 16 days, reducing it to 24 days from over 40 days. A container ship traveling at a speed of 20-25 knots can cover the route in approximately 10 to 12 days.
- **Cargo and Trade Impact:** Container ships carrying a variety of goods, including crude oil, metals, and textiles, have already started arriving at Indian ports, signaling the operational success of the corridor. This trade route holds immense potential for increased cooperation and growth in bilateral trade between India and Russia.

### Significance of the Eastern Maritime Corridor (EMC):

- **Logistics Cost Reduction:** The reduced transportation time and distance will cut logistics costs by around 40%, improving efficiency in trade and fostering economic growth.
- The current trade route through the Suez Canal between Mumbai and St. Petersburg takes around 40 days, covering 16,066 kilometers, highlighting the time and cost benefits of the new route.

### Boost to India's Maritime Sector:

- India's maritime sector, which handles 95% of the country's trade by volume and 70% by value, stands to benefit significantly from this new corridor.
- It aligns with India's Maritime Vision 2030, which includes over 150 initiatives aimed at expanding the maritime sector.

### Strategic Geopolitical Benefits:

- The corridor also complements India's Act Far East Policy by offering enhanced access to Russian resources and positioning India as a more prominent player in the Pacific trade network.
- The route passes through key regions such as the Sea of Japan, South China Sea, and the Malacca Strait, all of which are critical to global trade and strategic maritime routes.
- Furthermore, the corridor addresses China's dominance in the South China Sea, an area of significant geopolitical importance.



### Other Maritime Corridors:

- The Chennai-Vladivostok corridor is one of several initiatives designed to enhance global connectivity. India's involvement in the India-Middle East-Europe Economic Corridor (IMEEC), announced during the 2023 G20 Summit, and the International North-South Transport Corridor (INSTC), which connects Russia's Baltic coast to India's western ports, reflects India's growing commitment to strengthening its maritime and trade networks across regions.
- The Chennai-Vladivostok maritime corridor is a pivotal development in India-Russia trade relations, offering benefits that range from reduced logistics costs to enhanced geopolitical influence, while also contributing to India's broader maritime strategy and global economic integration.

## Strengthening India-CARICOM Ties: Prime Minister Modi's Vision

### Why in News:

Prime Minister Narendra Modi recently proposed seven key pillars to deepen the partnership between India and the Caribbean Community (CARICOM) during the second India-CARICOM Summit in Georgetown, Guyana. This summit marked the first visit of an Indian head of state to Guyana in over 50 years. The discussions focused on fostering collaboration in vital sectors such as trade, technology, tourism, health, and

agriculture, crucial to both regions' growth.

### About India-CARICOM Partnership

- CARICOM is a regional organization comprising 15 Caribbean nations, promoting economic integration and cooperation in various sectors.
- The first India-CARICOM Summit took place in 2003, setting the stage for collaboration, and the second summit in 2024 marked an advanced phase in bilateral engagement.

### Prime Minister Modi's Seven Key Pillars

- **Trade:** Modi emphasized deepening trade ties and creating a stronger trade ecosystem between India and the Caribbean, reducing barriers and opening new trade avenues.
- **Technology:** Leveraging India's leadership in ICT, space technology, and digital infrastructure, Modi proposed using India's technological resources to foster digital transformation in CARICOM nations.
- **Tourism:** Tourism being a vital economic sector for the Caribbean, Modi suggested fostering synergies to boost tourism, including promoting India's growing travel market and improving connectivity.
- **Talent:** Modi proposed the exchange of skills and talent between the two regions, facilitating educational exchanges, vocational training, and capacity-building programs.
- **Tradition:** Recognizing the deep cultural ties due to the migration of Indians to the Caribbean, Modi called for enhancing cultural exchanges to strengthen traditional bonds.
- **Small and Medium Enterprises (SMEs):** Modi proposed creating an online portal for SME collaboration, building on the \$1 million grant from a previous India-CARICOM meeting to promote entrepreneurship.
- **Agriculture and Food Security:** Highlighting India's advances in agriculture, Modi emphasized collaborations to ensure food security in the Caribbean through knowledge exchange and agricultural technology.

### Significance of the India-CARICOM Summit:

This summit showcased India's growing recognition of the Caribbean's strategic importance. Key benefits include:

- **Economic Cooperation:** Strengthening trade, technology, and SME ties opens new markets for Indian products and fosters investment.
- **Health and Pharmaceuticals:** India's expertise in affordable healthcare and vaccines can address

Caribbean health needs.

- **Renewable Energy:** Collaboration on sustainable energy and climate change will continue through India's USD 150 million credit line.



- **Disaster Management:** India's expertise in humanitarian aid and disaster relief is crucial for CARICOM nations, as seen during the COVID-19 pandemic.
- **Cultural and Educational Exchange:** Enhanced exchanges will strengthen people-to-people ties and promote mutual understanding.

## The 6th ASEAN-India Trade in Goods Agreement (AITIGA) Joint Committee Meeting

### Why in News:

The 6th AITIGA Joint Committee Meeting was held to strengthen trade relations between India and ASEAN.

### About ASEAN-India Trade in Goods Agreement (AITIGA)

- The ASEAN-India Trade in Goods Agreement (AITIGA) is a trade deal between ASEAN and India.

### Background:

- The ASEAN-India Free Trade Area (AIFTA) began with the Framework Agreement signed in October 2003, leading to agreements on Trade in Goods, Services, and Investment.
- The AITIGA entered into force on January 1, 2010.
- **Key Provisions:** Aims to reduce and eliminate duties on 76.4% of goods traded between ASEAN and India.
- **Review Process:** In September 2022, both sides initiated a review to make the agreement more trade-facilitative. The review is expected to conclude in 2025.
- **Sub-Committees:** 8 sub-committees focus on areas like market access, rules of origin, and trade remedies.
- **Bilateral Trade:** ASEAN-India trade reached \$122.67 billion in 2023-24, with a 9.96% increase in Indian exports to ASEAN, and a 34.30% increase in imports.



### What is ASEAN?

- **Founded:** It was founded on August 8, 1967, in Bangkok by Indonesia, Malaysia, Philippines, Singapore, and Thailand.
- **10 countries:** Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Laos, Myanmar, Cambodia, and Vietnam are the current members of the organisation.
- **Future Member:** In November 2022, ASEAN agreed to admit East Timor (Timor-Leste) as its 11th member and granted it observer status at high-level meetings.



- **ASEAN Summit:** The highest policy-making body, meeting twice annually since the first summit in February 1976 in Bali, Indonesia.
- **Influence:** ASEAN is a key regional grouping, with dialogue partners including India, the US, China, Japan, and Australia.

### India-ASEAN Relations:

- **'Act East' Policy:** ASEAN centrality remains a key part of India's foreign policy.
- **History of Dialogue:** Relations began as a sectoral dialogue in 1992, became a full dialogue partnership in 1995, and were elevated to a "Strategic Partnership" in 2012. In 2022, relations were upgraded to a "Comprehensive Strategic Partnership."
- **Trade Goals:** India-ASEAN bilateral trade is projected to reach \$300 billion by 2025. ASEAN is India's fifth-largest trading partner.

## Withdrawal from the Paris Agreement

### Why in News:

Argentina, under President Javier Milei, is considering withdrawing from the Paris Agreement, joining a broader trend of climate change skepticism. This comes as the world prepares for potential U.S. withdrawal under President-elect Donald Trump.

### What is the Paris Agreement?

- The Paris Agreement, adopted in 2015, aims to limit global warming to well below 2°C, with efforts to keep it below 1.5°C.
- It focuses on reducing GHG emissions and promoting sustainable development.
- Countries must submit Nationally Determined Contributions (NDCs) every five years to increase climate action.

### How does a Country withdraw from the Paris Agreement?

- A country can withdraw after three years of ratification, with withdrawal becoming effective one year after notifying the UN.
- The process is formal and gradual but signifies disengagement from global climate efforts.

### Why is Argentina considering withdrawal?

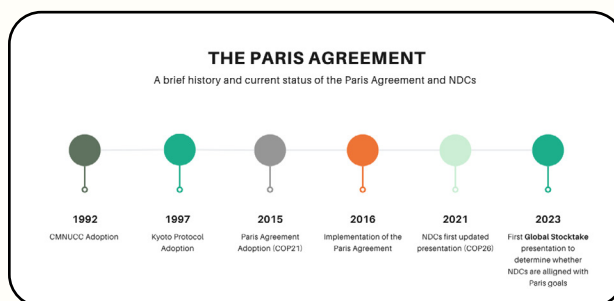
- President Milei, a climate skeptic, has previously labeled climate change a "socialist lie" and is

re-evaluating Argentina's participation in the agreement.

- The government acknowledges climate change but attributes it to natural cycles rather than human activity.

### What would Argentina's withdrawal mean?

- **Impact on Global Climate Goals:** Argentina is the 24th-largest emitter of GHGs. Its withdrawal could undermine efforts to limit global warming and prompt other countries to follow suit.
- **Economic and Trade Implications:** Argentina has large fossil fuel reserves. Exiting the agreement could increase reliance on fossil fuels, making it less attractive to climate-conscious trade partners.
- Trade relations with climate-focused countries, like the EU, could be strained.



### Domestic Politics and Challenges:

- Argentina ratified the agreement constitutionally, so Milei would need parliamentary approval to withdraw. Domestic opposition could complicate this.

### Global Reactions and Concerns:

- Niklas Höhne, a climate expert, warns that Argentina's exit could isolate it economically and diplomatically.
- Withdrawal would strain relations with climate-focused nations and hinder efforts to avoid severe environmental impacts like extreme weather and biodiversity loss.

### Implications for Global Climate Goals:

- **Emission Reduction Targets:** Global emissions need to be reduced by 42% by 2030 to stay on track for a 1.5°C future. Argentina's exit could jeopardize this target.
- **Role of Developing Nations:** As a developing nation with significant fossil fuel reserves, Argentina's withdrawal could weaken support for other developing countries transitioning to

greener economies.

## 11th ASEAN Defence Ministers' Meeting-Plus

### Why in News:

Recently, 11th ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus) meeting was held in Vientiane, Laos. Defence minister Rajnath Singh participated in the meeting as an India's representative. ADMM-Plus serves as a significant platform for enhancing defence and security cooperation among ASEAN countries and their dialogue partners.



### Overview of ADMM-Plus:

- ADMM-Plus was established in 2010 to deepen defence cooperation among ASEAN member states and their eight dialogue partners: India, China, Russia, United States, Japan, South Korea, Australia, and New Zealand.
- The platform facilitates discussions on regional security, peace, stability, and cooperation on areas like counterterrorism, humanitarian assistance, peacekeeping, and maritime security.
- ADMM-Plus reflects ASEAN's commitment to multilateralism, dialogue, and regional cooperation in the Indo-Pacific, and has become essential in addressing complex security issues.

### Key Areas of Focus for India at ADMM-Plus:

- Maritime Security:**
  - India places significant emphasis on maritime

security, given its strategic location in the Indian Ocean Region (IOR).

- Key areas of focus include freedom of navigation, international shipping lanes, and anti-piracy measures.
- India seeks to strengthen engagement with ASEAN and its partners on these critical issues.
- Counterterrorism:**
  - India has long called for stronger counterterrorism cooperation in the region.
  - It advocates for greater intelligence sharing, and coordinated efforts to combat terrorism financing, radicalization, and cross-border terrorism.
- Humanitarian Assistance and Disaster Relief (HADR):**
  - India has emerged as a key partner in humanitarian assistance and disaster relief in the region.
  - Participation in disaster management exercises and humanitarian missions under ADMM-Plus highlights India's commitment to regional human security.
- Cybersecurity:**
  - With the increasing threat of cyberattacks, India advocates for greater cybersecurity cooperation within ADMM-Plus.
  - The aim is to build cyber resilience and safeguard critical infrastructure across the region.

### The Significance of ADMM-Plus:

- ADMM-Plus provides a unique forum for dialogue on regional and international security issues, promoting understanding and cooperation among participating countries.
- It plays a vital role in addressing security challenges like maritime security, terrorism, and disaster response in the Indo-Pacific.
- India's participation in the 11th ADMM-Plus reflects its growing importance as a key player in regional and global defense cooperation. India, along with Malaysia, co-chairs the ADMM-Plus Expert Working Group on Counterterrorism.



# Environment

## India's Evolving Role in Global Climate Governance

India has emerged as a critical stakeholder in global climate governance, showcasing an evolving approach toward addressing climate change while safeguarding its developmental imperatives. This article examines India's trajectory from skepticism to leadership in global climate negotiations, its role in climate finance, and its engagement with the Conference of Parties (COP).

### India's Historical Approach to Climate Action:

- ❖ India's engagement with global climate governance dates back to the 1972 United Nations Conference on the Human Environment in Stockholm. Former Prime Minister Indira Gandhi highlighted the need to balance environmental conservation with poverty alleviation, stating, "We do not wish to impoverish the environment any further, and yet we cannot for a moment forget the grim poverty of large numbers of people."
- ❖ Initially, environmental protection was perceived as a constraint on economic growth and industrialization, critical to poverty reduction and human development. However, the concept of sustainable development, which balances economic progress and environmental protection, encouraged India to align with global climate action efforts.
- ❖ India's consistent advocacy for the principles of Common But Differentiated Responsibilities (CBDR) and climate justice has shaped its stance in international climate negotiations. India has called for finance, technology transfer, and capacity-building support from developed nations to aid developing countries in combating climate change.

### India's Transition to a Climate Leader:

### Shift in Engagement Post-2000:

- ❖ India's engagement in climate negotiations evolved significantly during the early 2000s. Hosting COP8 in New Delhi in 2002 demonstrated India's growing interest in climate governance. In 2008, India introduced the National Action Plan on Climate Change (NAPCC), underscoring its commitment to sustainable development.
- ❖ The Paris Agreement of 2015 marked a pivotal shift in global climate governance, allowing countries to determine their climate commitments. India embraced this framework by submitting its first Nationally Determined Contribution (NDC) in 2015 and updating it in 2022. These commitments reflect India's proactive role in the global climate movement.

### Climate Goals and Achievements:

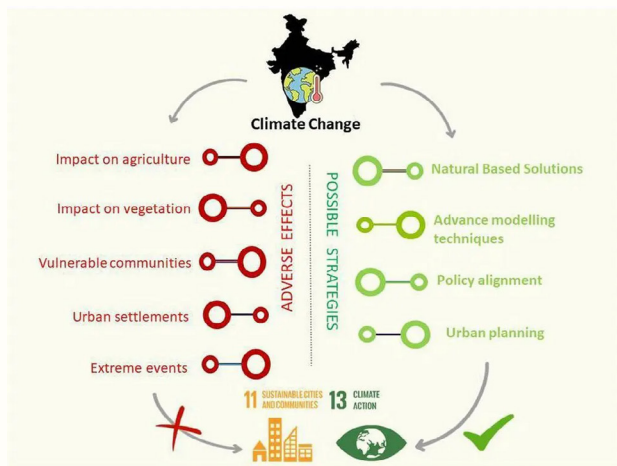
- ❖ India's updated NDC (2022) outlines ambitious climate targets, including:
  - » Reducing the emissions intensity of GDP by 33-35% from 2005 levels (achieved ahead of schedule).
  - » Achieving 40% cumulative electric power capacity from non-fossil fuel-based resources (target surpassed).
- ❖ India has also been a major participant in carbon trading mechanisms under the Kyoto Protocol, with renewable energy projects accounting for 50% of its Clean Development Mechanism (CDM) initiatives.

### India's Stance at COP29:

- ❖ At COP29 in Baku, Azerbaijan, India rejected the New Collective Quantified Goal (NCQG) text, citing its inadequacy in addressing the needs of the Global South. The NCQG aims to mobilize at least \$300 billion annually for climate action in

developing countries by 2035, with developed nations leading contributions.

- ❖ India opposed the top-down “Just Transition” approach, arguing that such prescriptive measures contradict the principles of the UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. It reiterated that climate action must align with CBDR principles, respecting the developmental priorities of the Global South.
- ❖ India’s negotiator, Chandni Raina, emphasized the need for collaboration and trust, criticizing the lack of inclusivity in decision-making. Other developing nations, including Nigeria, supported India’s objections.



### India’s Expanding Role in Climate Finance:

- ❖ **Recipient and Contributor:** India has been both a beneficiary and contributor to global climate finance. It holds approximately 31% of the global carbon credits market and has leveraged initiatives like the CDM to transition to renewable energy. In 2022, India contributed \$1.28 billion to climate finance for other developing countries, showcasing its leadership in South-South cooperation.
- ❖ **Challenges in Energy Transition:** Despite progress, India faces significant challenges in reducing its dependence on fossil fuels, which account for 78% of its energy needs. Achieving a steady energy transition requires substantial investment, technological advancements, and capacity-building efforts.

### India’s Leadership in Global Climate Initiatives

- ❖ **Innovative Climate Action Programs:** India has spearheaded several international initiatives, including:
  - » **International Solar Alliance (ISA):** Promoting solar energy adoption globally.
  - » **Lifestyle for Environment (LiFE):** Advocating sustainable lifestyle practices.
  - » **Mangrove Alliance for Climate:** Protecting and restoring mangrove ecosystems.
- ❖ These initiatives underscore India’s commitment to global climate leadership.
- ❖ **Engagement with Climate Groupings:** India actively participates in coalitions such as the G77, Like-Minded Developing Countries (LMDC), and the BASIC Group (Brazil, South Africa, India, and China), advocating for equitable climate finance and technology transfer. India has also leveraged non-climate forums like the G20, BRICS, and the Shanghai Cooperation Organisation (SCO) to integrate climate issues into broader global agendas.
- ❖ **Intersections of Climate Change and Development:** Climate change intersects with various global challenges, including migration, disasters, and biodiversity loss. India, with its diverse population and vulnerability to extreme weather events, stands to benefit significantly from the Loss and Damage Fund, operationalized at COP29. This fund aims to provide financial support to nations disproportionately affected by climate change.

### The Road Ahead: Balancing Ambition and Equity

- ❖ India’s growing influence in global climate governance positions it as a bridge between developed and developing nations. However, several steps are crucial for India to strengthen its leadership role:
  - » **Enhanced Climate Finance Mobilization:** Accelerate investments in renewable energy and capacity-building.
  - » **Strengthened International Alliances:** Collaborate with developing nations to advocate for equitable climate action.
  - » **Integrated Climate Policy:** Align domestic policies with global commitments to achieve



sustainable development goals.

### Conclusion:

As the 29th COP concludes, India's role in global climate governance highlights its evolution from a cautious participant to a proactive leader. Guided by the principles of CBDR and sustainable development, India continues to champion equitable climate action while addressing the developmental aspirations of its population. With its

strategic initiatives and expanding influence, India is well-positioned to bridge gaps between developed and developing nations, fostering collaboration on critical issues like equity, finance, and technology transfer. By strengthening its commitments and leveraging international platforms, India can lead the global fight against climate change, ensuring a just and sustainable future for all.

# Short Issues

## India Launches Updated National Biodiversity Strategy and Action Plan at COP 16 in Colombia

### Why in News:

India recently unveiled its updated National Biodiversity Strategy and Action Plan (NBSAP) during the 16th Conference of the Parties (COP 16) to the Convention on Biological Diversity (CBD) in Cali, Colombia.

- This significant initiative was announced by Union Minister of State for Environment, Forest and Climate Change, Shri Kirti Vardhan Singh, at a special event titled "Roadmap for achieving the Kunming-Montreal Global Biodiversity Framework (KMGBF) targets and release of India's updated NBSAP."

### Key Objectives of the Updated NBSAP:

- The updated NBSAP outlines several critical objectives:
  - » **Alignment with KMGBF:** Focused on halting biodiversity loss by 2030 and promoting a sustainable relationship with nature by 2050.
  - » **Whole-of-Government and Whole-of-Society Approach:** This integrated strategy encourages collective action across various sectors to address environmental challenges.

### Key Features of the Updated NBSAP:

- **Ecosystem Restoration:** The plan prioritizes restoring degraded ecosystems, protecting wetlands, and ensuring sustainable management

of marine and coastal areas.

- **Species Recovery Programs:** Targeted conservation efforts are aimed at enhancing the survival of threatened and endangered species.
- **Community-Driven Conservation:** Local communities are empowered to lead conservation initiatives, fostering grassroots participation and stewardship.
- **Transformative Approach:** The NBSAP adopts a holistic perspective, recognizing the interconnections between different ecosystems and their inhabitants.
- **Ecosystem-Based Management:** Emphasizing the management of ecosystems as a whole, rather than focusing solely on individual species, to ensure ecological health.
- **Mainstreaming Biodiversity:** Integrating biodiversity considerations into all sectors of development ensures that conservation efforts are central to national policy.

### Collaborative Development Process:

- The updated NBSAP was developed through a comprehensive consultative process that engaged 23 central ministries, state-level organizations, communities, and various stakeholders. This collaborative effort resulted in the establishment of 23 national biodiversity targets that align with the KMGBF, demonstrating India's commitment to contributing to global biodiversity goals.

### Governance Framework:

- The governance structure for biodiversity conservation is reinforced by the Biological Diversity Act of 2002 and its amendments in 2023.

It includes:

- » National Biodiversity Authority
- » State Biodiversity Boards
- » Local Biodiversity Management Committees
- This three-tier structure ensures effective implementation of biodiversity strategies at all levels, with the Ministry of Environment, Forest and Climate Change (MoEFCC) acting as the central coordinating agency.

### Emphasis on Transformative Approaches:

- The updated NBSAP stresses several transformative approaches:
  - » **Ecosystem-Based Management:** Prioritizing the management of ecosystems holistically.
  - » **Bottom-Up Implementation Strategies:** Ensuring local involvement and ownership of conservation efforts.
  - » **Mainstreaming Biodiversity:** Incorporating biodiversity considerations into all sectors of national development.
  - » **Enhancing Inter-Agency Cooperation:** Facilitating collaboration among different governmental agencies for effective biodiversity management.

## UNEP Adaptation Gap Report 2024

### Why in News:

The United Nations Environment Programme (UNEP) recently released its “Adaptation Gap Report 2024: Come Hell and High Water”. The report assesses global progress in climate adaptation and highlights the urgent need for increased efforts, especially financial commitments, as COP29 approaches.

### What is the Adaptation Gap?

- The Adaptation Gap is the difference between the actual measures being implemented to adapt to climate change and the level of adaptation needed to meet societal and environmental goals.
- It reflects resource limitations and competing priorities that prevent the full-scale implementation of climate resilience strategies.

### Key Findings from the Adaptation Gap Report 2024

- **Adaptation Finance Gap:**
  - » The adaptation finance gap for developing

countries is estimated at \$187–359 billion per year.

- » 2022 adaptation finance flows increased to \$27.5 billion, but actual annual needs are much higher, with \$387 billion needed annually by 2030.
- **Progress in Adaptation Finance:**
  - » International public adaptation finance to developing countries rose from \$22 billion in 2021 to \$28 billion in 2022.
  - » The Glasgow Climate Pact goal of doubling adaptation finance to \$38 billion by 2025 from 2019 would address only about 5% of the total adaptation finance gap.
- **The Significance of Adaptation:**
  - » Adaptation efforts can help halve global climate risk.
  - » For instance, investing \$16 billion annually in agriculture could prevent 78 million people from facing hunger and starvation due to climate change.
- **Urgency for Increased Adaptation Efforts:**
  - » Nations must significantly increase adaptation efforts at COP29, especially in terms of financial commitments.
  - » A shift is needed from reactive to anticipatory, strategic, and transformational adaptation.



### Recommendations for Bridging the Adaptation Gap:

- The report provides several recommendations to bridge the adaptation finance gap and scale up efforts:
  - » **Adopt an Ambitious New Collective Quantified Goal for Climate Finance:** A new goal for climate finance, including adaptation funding, should be agreed upon at COP29.
  - » **Strengthen Enabling Factors:** Strengthen institutions, governance, and financial

instruments necessary for effective adaptation.

- » **Shift to Transformational Adaptation:** Move away from short-term, project-based approaches to more long-term, transformational adaptation that addresses systemic climate risks.

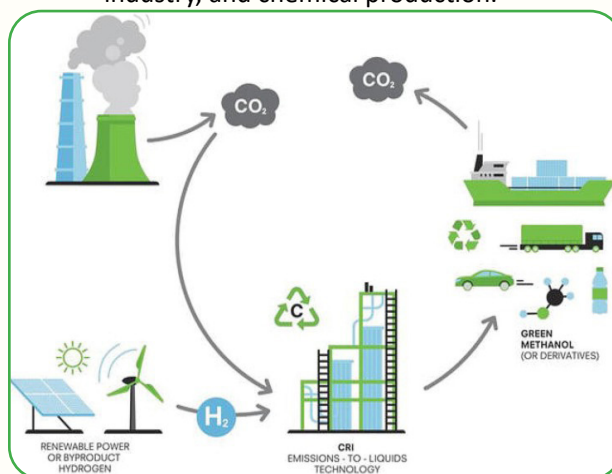
### Global and National Adaptation Initiatives:

- **Paris Agreement:** Aims to enhance adaptive capacity and support the most vulnerable countries.
- **UAE Framework for Global Climate Resilience:** Includes 11 global adaptation targets to improve resilience across sectors.
- **Adaptation Fund:** Supports projects to enhance resilience in developing countries under the Kyoto Protocol.

### India's National Adaptation Actions:

- **National Action Plan on Climate Change (NAPCC):** Includes eight national missions focused on climate change, including renewable energy, water conservation, and more.
- **National Adaptation Fund for Climate Change (NAFCC):** Finances adaptation projects, especially in vulnerable states.
- **Sectoral Schemes:** Programs like MISHTI (Mangrove Initiative) and Amrit Dharohar focus on enhancing climate resilience.

- » **CO<sub>2</sub> Capture:** The plant captures 20 tonnes of CO<sub>2</sub> per day from the flue gases produced by the Vindhyachal power plant, which is India's largest coal-fired power station with a capacity of 4.8 GW.
- » **Hydrogen Production:** Using a proton exchange membrane (PEM) electrolyser, the plant generates hydrogen from water, which is essential for the conversion process.
- » **Methanol Synthesis:** The captured CO<sub>2</sub> is then combined with the hydrogen to produce 10 tonnes of methanol daily, which can be used as a sustainable fuel source for various applications, including in transportation, industry, and chemical production.



## World's First CO<sub>2</sub> to Methanol Conversion Plant

### Why in News:

Recently, NTPC Limited inaugurated the world's first CO<sub>2</sub>-to-methanol conversion plant at its Vindhyachal power plant, located in Madhya Pradesh. This breakthrough project is a significant leap forward in both carbon management and sustainable fuel production, marking NTPC's commitment to addressing climate change and transitioning towards greener energy solutions.

### A Global First in Carbon Capture and Fuel Production:

- The innovative plant at Vindhyachal is designed to capture carbon dioxide (CO<sub>2</sub>) emitted from flue gases and convert it into methanol, a valuable fuel and industrial chemical. The process involves two key components:

### Contributing to India's Net-Zero Ambitions:

- NTPC's CO<sub>2</sub>-to-methanol conversion initiative aligns with India's broader climate goals under the Paris Agreement and its ambition to reach net-zero greenhouse gas emissions by 2070. As a leading power producer, NTPC plays a crucial role in India's energy transition, and this project demonstrates the company's efforts to lead by example in green technology and carbon reduction.

### About NTPC Limited:

- NTPC Limited, formerly known as National Thermal Power Corporation, is a state-owned public sector enterprise under the Ministry of Power of the Government of India. Established on November 7, 1975, NTPC has grown to become India's largest power generation company, playing a crucial role in the country's energy infrastructure and economic development.
- The company's headquarters are situated in New Delhi, and it operates with a mission to

provide reliable and affordable power to support India's growth while addressing environmental sustainability.

### NTPC's Role in India's Energy Transition:

- NTPC's focus on sustainability extends beyond its CO<sub>2</sub>-to-methanol plant. The company is making major strides in renewable energy, with a 60 GW renewable capacity target by 2032, and it has made substantial progress in the hydrogen energy space.

## Lead Exposure and Its Global Economic and Health Impacts

### Why in News:

A recent Lancet Public Health study, "Removing Lead from the Global Economy," reveals the immense costs of lead exposure, particularly in terms of premature cardiovascular disease (CVD) deaths. The study estimates global economic losses at \$6 trillion due to CVD mortality linked to lead exposure, highlighting the urgent need for global action to phase lead out of the economy.

### The Lead Industry: Current Scope and Demand

- **Historical Usage:** Lead has been widely used since ancient times and remains prevalent despite some restrictions.
- **Primary Application:** Today, 86% of global lead is used in lead-acid batteries, especially for vehicles and renewable energy storage.
- **Growing Demand:** The demand for lead-acid batteries continues to rise, leading to increased recycling efforts but also greater environmental contamination risks.

### Ecological Impacts of Lead Contamination:

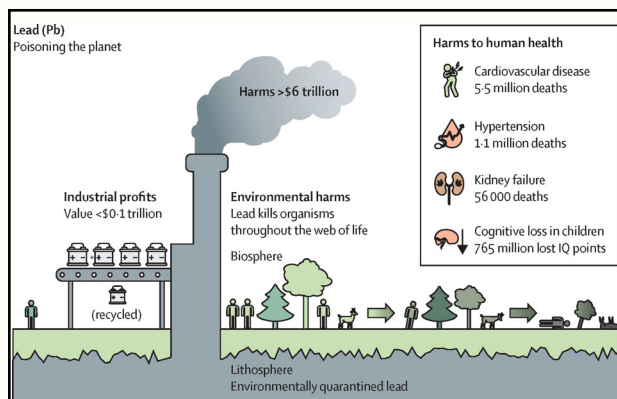
- **Bioaccumulation:** Lead builds up in ecosystems, affecting soil health and infiltrating the food web, posing risks to plants, insects, and animals.
- **Biodiversity Disruption:** High soil concentrations lead to impaired plant growth and reduced insect reproduction, impacting local biodiversity.
- **Food Chain Contamination:** Through bioaccumulation, lead moves up the food web, affecting predators and larger species, thereby disrupting entire ecosystems.

### Human Health Risks from Lead Exposure

- **Cognitive Impairment:** Lead exposure is linked

to cognitive delays in children, reduced IQ, and developmental impairments.

- **Behavioral Effects:** Elevated lead levels correlate with increased criminal behavior, particularly in young adults.
- **Irreversible Damage:** Even low levels of lead exposure can cause irreversible brain damage, emphasizing the need for worldwide prevention measures.



### Economic Impact and Industry Challenges

- **Industry Value:** Global lead production was valued at \$10.3 billion in 2022, with the lead-acid battery industry reaching \$50 billion in 2020.
- **High Health Costs:** The cost of lead-related health impacts, especially in cardiovascular disease, greatly surpasses its industrial benefits.
- **Alternative Technologies:** Safer options, such as lithium-ion batteries, are becoming both economically viable and technologically feasible, providing a critical alternative to lead.

### Issues in Lead Recycling:

- **Regulatory Challenges:** Many countries lack adequate regulations to ensure safe lead recycling, leading to environmental and health risks.
- **Environmental Contamination:** Poorly managed recycling processes contribute significantly to lead contamination in local environments.
- **Need for Stronger Oversight:** Effective recycling management requires robust regulations and systematic monitoring to prevent harm to public health and ecosystems.

### Conclusion:

The far-reaching health, environmental, and economic damage caused by lead exposure underscores the critical need to phase out lead from global use. Shifting



to safer alternatives like lithium-ion batteries and strengthening recycling regulations are essential to safeguarding both human and planetary health.

## Global Carbon Markets and Climate Finance

### Why in News:

The COP29 summit held in Baku, Azerbaijan, made significant strides in developing a global carbon market and advancing climate finance goals. These discussions focused on finalizing Article 6 of the Paris Agreement and establishing the New Collective Quantified Goal (NCQG) for climate finance.

### Framework for a Global Carbon Market:

- **Article 6.2:** Enables bilateral trading of carbon credits, allowing countries to cooperate directly in achieving emissions reductions.
- **Article 6.4:** Establishes a UN-supervised global carbon market to facilitate wider, regulated trading beyond bilateral agreements.
- **Carbon Credits:** Represent certified reductions in emissions, encouraging investments in sustainable projects and helping countries achieve Nationally Determined Contributions (NDCs).

### Progress Achieved at COP29:

- Nations approved new standards to verify carbon removal, ensuring credits are authentic and credible. COP29 President Mukhtar Babayev noted that implementing Article 6 could reduce the cost of climate goals by \$250 billion annually.
- These advancements are expected to make carbon trading a “game-changing tool” to channel resources toward developing countries.

### Challenges in Carbon Markets:

- Transparency and accountability in credit validation are critical to avoid misuse and ensure genuine emissions reductions.
- Clear guidelines are needed for when credits become tradable and who retains credit ownership.
- Ensuring broad acceptance of these standards by all signatory countries remains a priority.

### Ownership and Eligibility Issues:

- **Credit Ownership:** If a developed country finances a carbon-reducing project in a developing country, questions arise over who can claim the emissions reduction.

- **Eligibility Criteria:** Determining at what stage in a project’s lifecycle the credits become eligible for trade is essential for accurate accounting.
- **NDC Reporting:** Countries must decide if credits generated by foreign-financed projects within their borders can count toward their NDC targets.

### India’s Commitments and Needs:

- India aims to reduce emissions intensity by 45% from 2005 levels and create 2.5–3 billion tonnes of additional carbon sinks by 2030.
- As a major developing economy, India needs clear credit ownership rules to meet its climate commitments effectively.
- India’s case underscores the importance of transparent rules in managing international financing and carbon credit ownership.

### New Collective Quantified Goal (NCQG) for Climate Finance:

- Updates the initial \$100 billion annual climate finance target set for developed countries to support developing nations. The NCQG aims to increase this target to address rising costs in climate adaptation and mitigation efforts.
- Expected to take effect by 2025, the NCQG underscores the financial responsibility of developed countries to help vulnerable regions.
- The NCQG can create a robust financial foundation to meet ambitious climate goals globally.

### Conclusion:

COP29 in Baku has made pivotal advancements in global carbon markets and climate finance frameworks. By establishing standards for carbon credit authenticity and emphasizing the NCQG, COP29 highlights a collective, cooperative approach to climate action. These frameworks are expected to be operational by 2025, making carbon markets and climate finance essential tools for global climate goals and sustainable development.

## India’s Renewable Energy Growth

### Why in News:

India’s renewable energy sector has witnessed remarkable growth from October 2023 to October 2024, demonstrating the country’s commitment to transitioning towards clean energy. According to data

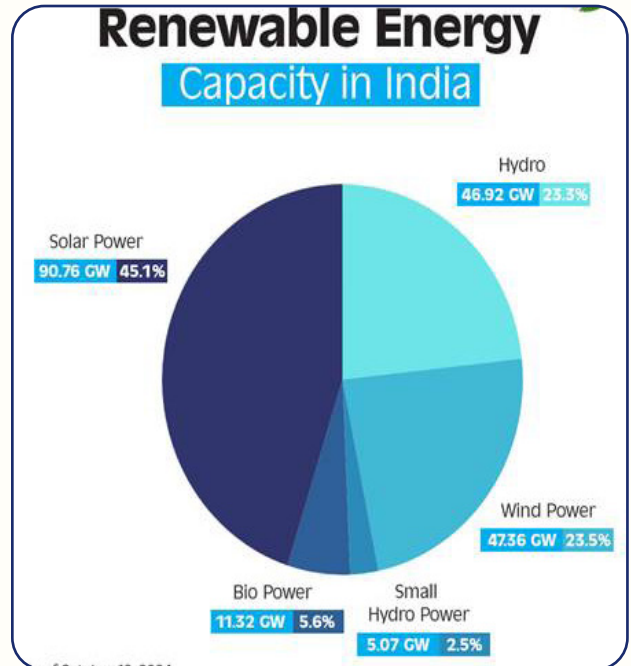
released by the Ministry of New and Renewable Energy (MNRE), India has made significant progress in meeting its renewable energy (RE) targets, in alignment with the Panchamrit goals set by Prime Minister Shri Narendra Modi.

### Key Highlights of Renewable Energy Growth (2023-2024)

- **Total Renewable Energy Capacity:**
  - » India's total installed renewable energy capacity increased by 24.2 GW (13.5%), from 178.98 GW in October 2023 to 203.18 GW in October 2024.
  - » Including nuclear energy, the total non-fossil fuel capacity increased to 211.36 GW in 2024, compared to 186.46 GW in 2023.
- **Solar Power Surge:**
  - » The solar power sector saw a remarkable increase of 20.1 GW (27.9%), from 72.02 GW in October 2023 to 92.12 GW in October 2024.
  - » Total solar capacity, including projects under implementation and those tendered, now stands at 250.57 GW, up from 166.49 GW last year.
- **Wind Power Growth:**
  - » Wind power experienced steady growth, with its installed capacity increasing by 7.8%, from 44.29 GW in October 2023 to 47.72 GW in October 2024.
  - » The total capacity in the pipeline for wind projects has reached 72.35 GW, reflecting India's commitment to scaling up wind energy production.

### Hydro and Nuclear Contributions to Renewable Energy Mix

- **Large Hydro Projects:**
  - » By October 2024, large hydro projects contributed 46.93 GW to India's renewable energy portfolio, further diversifying the country's green energy mix.
- **Nuclear Power:**
  - » Nuclear power contributed 8.18 GW, supporting India's growing need for clean, reliable energy sources.
  - » These contributions highlight that India is adopting a broad and diversified approach to renewable energy, combining solar, wind, hydro, and nuclear to ensure a balanced and resilient energy future.



### Key Drivers Behind India's Renewable Energy Growth

- **Panchamrit Targets:**
  - » India aims to achieve 500 GW of non-fossil energy capacity by 2030, significantly reducing reliance on fossil fuels.
  - » By 2030, 50% of India's total energy requirements will be met through renewable energy sources, including solar, wind, and other clean energy solutions.
  - » India plans to reduce its projected carbon emissions by one billion tonnes between 2021 and 2030, aiming to minimize its carbon footprint and contribute to global climate goals.
  - » The country aims to reduce the carbon intensity of its economy by 45% by 2030, based on 2005 levels. This goal focuses on improving energy efficiency and promoting sustainable growth.
  - » The ultimate goal is for India to achieve net zero emissions by 2070, ensuring long-term sustainability and positioning India as a leader in global climate action.
- **National Green Hydrogen Mission:**
  - » India has launched the National Green Hydrogen Mission to promote hydrogen as a clean fuel, which will further boost the country's renewable energy capacity and

reduce dependence on fossil fuels.

- **Production Linked Incentive (PLI) Scheme:**
  - » The PLI scheme has played a crucial role in boosting the domestic manufacturing of solar photovoltaic (PV) modules, enhancing India's ability to meet its solar energy goals while reducing reliance on imports.

## Fourth Edition of "An Eye on Methane: Invisible but Not Unseen" Report

### Why in News:

The fourth edition of the 'An Eye on Methane: Invisible but Not Unseen' report was launched by UNEP's International Methane Emissions Observatory (IMEO), a key partner in the Global Methane Pledge. This report provides valuable insights into global methane emissions, their impact on climate change, and ongoing efforts to mitigate these emissions.

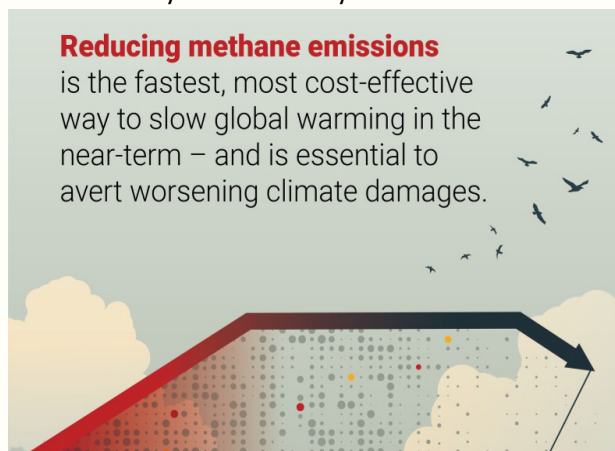
- IMEO plays a critical role in providing open, reliable, and actionable data on methane emissions, working with governments, industries, and research bodies to accelerate global methane reductions.

### Key Findings from the Report

- **Global Warming Impact**
  - » Human-caused methane emissions are responsible for roughly one-third of the planet's current warming.
  - » Reducing methane is considered one of the most cost-effective and fast-acting strategies to mitigate global warming in the near-term.
- **Emissions from the Oil and Gas Sector**
  - » The Oil and Gas Methane Partnership 2.0 (OGMP 2.0), a key initiative led by UNEP, requires its members to report methane emissions.
  - » However, OGMP 2.0 currently covers just 42% of global oil and gas production.
  - » This highlights a gap in comprehensive industry-wide reporting, underlining the need for expanded participation.
- **Emissions in the Steel Supply Chain**
  - » The metallurgical coal (metcoal) production used in steel manufacturing is responsible for around one-tenth of global energy sector methane emissions.

- » The good news is that these emissions can be mitigated at a minimal cost, representing a significant opportunity for climate action in the steel industry.

- **Poor Response to Emissions Alerts**
  - » UNEP's Methane Alert and Response System (MARS) uses satellite technology to track major methane emissions and alert governments.
  - » Despite over 1,200 MARS notifications issued to date, only 1% have resulted in any substantial response or mitigation action.
  - » This highlights a clear climate opportunity for governments and operators to act more swiftly and effectively.



### Initiatives to Reduce Methane Emissions:

- **Global Initiatives:**
  - » **Global Methane Pledge:** A global commitment to reduce methane emissions, signed by numerous countries and companies.
  - » **Climate and Clean Air Coalition (CCAC):** A partnership aiming to mitigate Short-Lived Climate Pollutants (SLCPs), including methane.
  - » **Global Methane Alliance:** A global initiative bringing together countries, industries, and other stakeholders to promote methane mitigation.
- **Initiatives in India:**
  - » **National Innovations in Climate Resilient Agriculture (NICRA):** Focuses on developing agricultural practices that reduce methane emissions.
  - » **National Livestock Mission:** Aims to enhance livestock productivity while minimizing methane emissions from livestock.
  - » **Gobar-Dhan Scheme:** Encourages the production of biogas from organic waste,

reducing methane emissions.

- » **New National Biogas and Organic Manure Programme:** Promotes biogas production from organic waste, contributing to methane reduction.

### About Methane:

- Methane is a potent greenhouse gas, 86 times more powerful than CO<sub>2</sub> over a 20-year period.
- It has a relatively short atmospheric lifetime of about 12 years, making it easier to mitigate compared to longer-lived gases like CO<sub>2</sub>.
- Over 60% of methane emissions come from human activity, including:
  - » Agriculture (e.g., livestock digestion and rice paddies)
  - » Fossil fuels (e.g., natural gas extraction, oil production, coal mining)
  - » Waste (e.g., landfills and waste treatment plants)

## Fossil Fuel Non-Proliferation Treaty Initiative (FF-NPT)

### Why in News:

The Fossil Fuel Non-Proliferation Treaty (FF-NPT) advocates for regulating fossil fuels like nuclear weapons to curb climate change. The initiative has gained significant support from various countries, institutions, and individuals.

- It aims to phase out fossil fuels, ensure a global transition to renewable energy, and support workers and communities dependent on fossil fuel industries.
- The treaty focuses on equity, ensuring no nation, worker, or community is left behind in the transition.

### Key Objectives of FF-NPT:

- **Non-proliferation:** Prevent the expansion of fossil fuel production (coal, oil, gas).
- **Fair Phase-out:** End current fossil fuel extraction with a fair and equitable approach.
- **Just Transition:** Fast-track renewable energy adoption and diversify economies away from fossil fuels.

### Background of FF-NPT:

- **Launched:** Conceptualized in 2016, officially launched in 2019.

### Criticism of Paris Agreement:

- The Paris Agreement does not specifically address fossil fuel production, which the FF-NPT aims to rectify.
- The initiative was introduced around the same time as the Paris Agreement, emphasizing the need for binding international commitments on fossil fuel reduction.

### Endorsements and Support:

- 13 Small Island Developing States (SIDS), such as Vanuatu, Tuvalu, Fiji, Solomon Islands, and Tonga, vulnerable to climate change, support FF-NPT.
- Colombia, a large coal exporter, endorsed FF-NPT in December 2023.
- 10 more countries joined discussions at COP29 (2024), though their names were not publicly disclosed.

### Financial Institutions:

- Global Alliance for Banking on Values, a network of 70 sustainable banks, announced that 25 member banks endorse the initiative, marking the first collective backing by financial institutions.

### Scientific Evidence and Urgency:

- At COP29 (2024), Tzeporah Berman, Chair of the FF-NPT, highlighted the urgency:
  - » Fossil fuel emissions are projected to be 8% higher in 2024 than in 2015.
  - » Major fossil fuel-producing countries are planning to increase fossil fuel production by 110% by 2030, contrary to the goal of limiting global warming to 1.5°C.
  - » If current policies continue, the world is on track for 3°C of warming, which would lead to catastrophic climate impacts.

### Challenges Facing FF-NPT:

- Financial Support is a major challenge, particularly for developing countries that are heavily dependent on fossil fuels and vulnerable to climate change.
- The FF-NPT proposes the creation of a New Collective Quantified Goal to provide financial support to developing nations in their transition, complementing existing climate frameworks like the Paris Agreement.

### India's Position:

- India has not yet been extensively engaged by the FF-NPT, with initial focus on smaller nations.
- However, large fossil fuel-dependent countries like India and Indonesia are crucial for the success of



the treaty.

- India, which is set to see a 4.6% rise in fossil fuel emissions in 2024, could benefit from the treaty through equitable climate finance and support for renewable energy adoption.

## Launch of the Global Energy Efficiency Alliance at COP29

### Why in News:

At COP29 in Baku, Azerbaijan, the United Arab Emirates (UAE) unveiled the Global Energy Efficiency Alliance, a landmark initiative aimed at doubling global energy efficiency rates by 2030 and reducing carbon emissions. This initiative builds on the UAE's prior commitments made under the 'UAE Consensus' at COP28, where nations, organizations, and businesses pledged to reduce carbon footprints and adopt sustainable practices.

### Key Objectives:

- Double global energy efficiency rates by 2030.
- Reduce carbon emissions.
- Minimize natural resource consumption.

### Goals and Vision:

- Promote energy efficiency through knowledge sharing, technology transfer, and public-private partnerships.
- Establish best practices for energy efficiency, with a focus on regions like Africa that face barriers to technological and financial solutions.
- Encourage investment in energy efficiency projects to drive sustainable progress.

### Strategic Importance:

- The launch of the Alliance at COP29 underscores the growing importance of energy efficiency in addressing climate change and achieving global sustainability goals.
- The UAE's leadership solidifies its position at the forefront of global climate action, driving international collaboration for a sustainable energy future.

### About COP29:

- The 2024 United Nations Climate Change Conference (COP29) is currently taking place in Baku, Azerbaijan, from November 11 to 22, 2024.
- This major global climate event is presided over by Mukhtar Babayev, with Samir Nuriyev heading the

Organizing Committee.

### Key Agenda Items:

#### Climate Finance:

- A major focus will be on discussing how to support developing countries in tackling climate change and securing financial resources to implement climate action plans.

#### Energy Transition:

- Another significant topic is transitioning from fossil fuels to renewable energy sources, aiming to reduce global dependence on oil, gas, and coal.

#### Just Transition:

- A ministerial roundtable will address the Just Transition, discussing how to manage the shift to a low-carbon economy while ensuring fair treatment for workers and communities dependent on fossil fuels.
- The United Arab Emirates' Just Transition Work Programme will also be featured.



### About UNFCCC:

- The United Nations Framework Convention on Climate Change (UNFCCC) is a foundational international treaty designed to combat climate change by stabilizing greenhouse gas concentrations in the atmosphere.

### Key Details:

- Drafted:** May 9, 1992
- Signed:** United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, from June 4–14, 1992.
- Additional signatories in New York between June 20, 1992, and June 19, 1993.

### Objective (Article 2):

- To stabilize greenhouse gas concentrations in the atmosphere at a level that prevents dangerous human interference with the climate system.

- This stabilization goal aims to be achieved by:
  - » Promoting sustainable economic development.
  - » Ensuring that food production is not threatened.
  - » Allowing ecosystems to adapt naturally to the changing climate.

## Teesta Valley on Brink of Disaster: Experts Warn of Catastrophic Consequences

### Why in News:

The Teesta Valley, spanning Sikkim and West Bengal, is at risk of disaster due to Glacial Lake Outburst Flood (GLOF). Community organizations Save The Hills and the Darjeeling Himalaya Initiative (DHI) have issued urgent warnings to both state governments and central government, urging immediate action to prevent further devastation in next monsoon season.

### Background:

- The region was severely impacted by the 2023 Glacial Lake Outburst Flood (GLOF), which claimed over 100 lives, displaced thousands, and caused extensive environmental damage, disrupting agriculture and biodiversity. Vital military installations were also damaged, raising security concerns.

### Key Concerns:

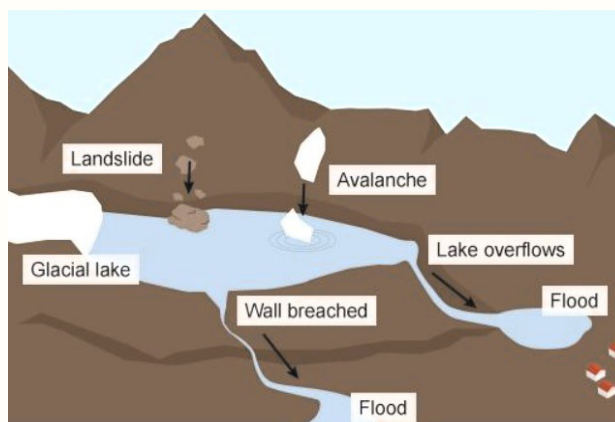
- **Lack of Coordination:** Both state governments are working independently, neglecting the interconnected nature of the Teesta River basin.
- **Absence of Unified Disaster Management:** Without a unified approach, recovery and preparedness efforts remain inadequate, leaving communities vulnerable.
- **Recurring Threat from the Teesta River:** The river poses a constant risk each monsoon, with overflowing waters threatening lives, infrastructure, and agricultural land.

### Recommendations for Action:

- **Joint Committee Formation:** Establish a Sikkim-West Bengal Joint Committee to coordinate disaster preparedness and recovery.
- **Expert Task Force:** Form a task force to develop a comprehensive action plan, assessing vulnerabilities and proposing restoration

strategies.

- **Structural Mitigation:** Reinforce embankments, build flood barriers, and re-channel the Teesta River to manage flooding.
- **Non-Structural Strategies:** Install flood warning systems, improve communication, and conduct awareness campaigns to ensure preparedness.
- **Land-Use Planning:** Identify high-risk zones, establish evacuation routes, and create safe zones for at-risk communities.
- **Afforestation Programs:** Launch tree planting initiatives to restore the ecosystem, prevent soil erosion, and mitigate landslide risks.



### About Glacial Lake Outburst Flood:

- A Glacial Lake Outburst Flood, or GLOF, is essentially a type of flood that happens when a glacial lake bursts, releasing massive amounts of water into the surrounding area.
- This usually occurs when the natural dam containing the lake fails, often due to erosion, heavy rainfall, earthquakes, or ice avalanches.
- In 2013, a GLOF occurred in Uttarakhand's Kedarnath, causing flash floods and killing thousands.
- The South Lhonak Lake in Sikkim burst in 2023, resulting in flash floods and loss of life.

### About Teesta Valley:

- The Teesta Valley, spanning Sikkim and West Bengal, holds ecological, economic, strategic, cultural, environmental, and social significance.
- It is a biodiversity hotspot with species like the red panda and snow leopard. The Teesta River supports irrigation, drinking water, and hydroelectric power.
- Economically, it drives agriculture, hydroelectricity, and tourism. Strategically, it connects India to

Nepal, Bhutan, and Bangladesh, and is vital for defense.

- Culturally, it is home to diverse ethnic groups and historic sites. Environmentally, it aids in carbon sequestration, water security, and soil conservation.
- The valley provides livelihoods, development, education, and healthcare for local communities.

## Guru Ghasidas-Tamor Pingla Tiger Reserve

### Why in News:

The Guru Ghasidas-Tamor Pingla Tiger Reserve has been officially declared the 56th tiger reserve in India, marking a significant milestone in tiger conservation.

### About Guru Ghasidas-Tamor Pingla Tiger Reserve:

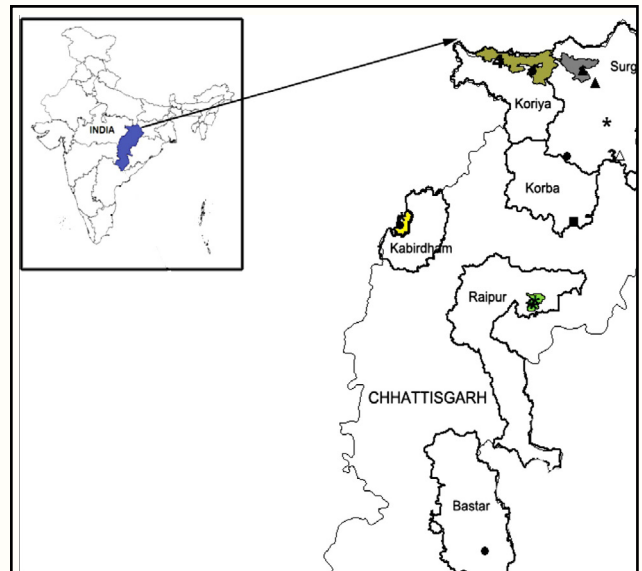
- Third largest tiger reserve in India, after Nagarjunasagar-Srisailem (Andhra Pradesh) and Manas (Assam).
- Chhattisgarh now has four tiger reserves, strengthening the state's commitment to tiger conservation.
- Part of a landscape complex spanning nearly 4,500 square kilometers.
- **Connected to:**
  - » Sanjay Dubri Tiger Reserve (Madhya Pradesh) to the north.
  - » Bandhavgarh Tiger Reserve (Madhya Pradesh) to the west.
  - » Palamau Tiger Reserve (Jharkhand) to the east.
  - » This connectivity forms a significant wildlife corridor across state boundaries.
- Home to threatened species such as the Indian wolf, sloth bear, leopard, and the Bengal tiger.
- The National Tiger Conservation Authority (NTCA) approved the reserve's notification in October 2021.
- Located in the Chota Nagpur Plateau and Baghelkhand Plateau, known for their ecological diversity. Supports various terrains, dense forests, and water bodies that are critical for the survival of the Bengal tiger.

### About Project Tiger:

- Launched in 1973 by the Government of India under the Ministry of Environment, Forests, and

Climate Change, Project Tiger aims to conserve the Bengal tiger and maintain the ecological balance of its habitat. Initially launched in 9 tiger reserves, it now covers 56 across India.

- The project focuses on preserving tigers for their scientific, economic, and ecological value, adopting a holistic ecosystem approach that includes the conservation of prey species. Managed by the National Tiger Conservation Authority (NTCA), it involves financial assistance for tiger reserves and anti-poaching measures.



### Key strategies include:

- » **Core-buffer areas:** National parks for strict protection and mixed-use buffer zones.
- » **Technological innovations:** UAV surveillance and M-STripes for monitoring.
- » Special Tiger Protection Forces (STPF) for anti-poaching.

### About Tigers in India:

- As of 2023, India's tiger population exceeds 3,000, making it the world leader in tiger conservation. Project Tiger also promotes community engagement and ecotourism, supporting both conservation and local livelihoods.

## A Global Plastic Treaty

### Why in News:

Over 170 countries will soon gather in Busan, Republic of Korea, for the fifth and final round of negotiations to create a legally binding global treaty on plastic

pollution, particularly in marine environments. This treaty, mandated by the UN Environmental Assembly (UNEA) in 2022, aims to establish a framework addressing plastic pollution throughout its life cycle, from production to disposal, with the goal of finalizing it by the end of 2024.

### The Need for a Global Plastic Treaty:

- **Rising Plastic Production:** Plastic's versatility has made it indispensable, leading to a dramatic increase in production. From 234 million tonnes (mt) in 2000, global plastic production reached 460 mt by 2019 and is projected to hit 700 mt by 2040. Asia is the largest producer, followed by North America (19%) and Europe (15%).
- This surge in production has contributed to a growing environmental crisis. Plastic takes 20 to 500 years to decompose, with less than 10% recycled. Each year, 400 million tonnes of plastic waste is generated, with projections indicating a 62% increase by 2050.



### Environmental and Health Impact:

- Plastic waste leaks into the environment, breaking down into microplastics and nanoplastics, which threaten marine and terrestrial ecosystems. Chemicals in plastic are linked to health problems like cancer, diabetes, reproductive disorders, and neurodevelopmental impairments.
- Plastic production also contributes significantly to

climate change. In 2020, it accounted for 3.6% of global greenhouse gas emissions, with 90% from production and 10% from waste management. If current trends persist, emissions could rise by 20% by 2050.

- India alone contributes 20% of global plastic pollution, generating 9.3 million tonnes annually, more than other major polluting countries like Nigeria, Indonesia, and China.

### The Scope of the Treaty

- **Bans on Specific Plastics and Additives:** Bans may be imposed on certain products and chemicals.
- **Recycling and Recycled Content Targets:** Legally binding targets for recycling and incorporating recycled materials into consumer goods.
- **Just Transition for Workers:** Ensuring support for workers and communities whose livelihoods are tied to plastic production.

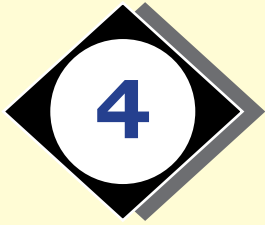
### Challenges in Negotiations

- **Production Caps:** Countries like Saudi Arabia, Russia, and India oppose restrictions on plastic production, advocating for waste management solutions instead.
- **Ambitious Reduction Targets:** Rwanda, Peru, and the EU propose a 40% reduction in plastic waste by 2040.
- **Finance:** A key issue is securing funding for plastic waste management, with calls for better alignment of public and private investments.

### India's Position in the Negotiations:

- **Opposition to Production Caps:** India rejects production limits, citing the UNEA's mandate.
- **Support for Financial and Technical Assistance:** India seeks inclusion of financial support and technology transfer to improve waste management.
- **Regulation of Harmful Chemicals:** India insists that regulation of chemicals should be based on scientific studies and handled domestically.
- **Pragmatic Approach to Plastic Phase-Out:** India calls for a flexible, context-specific approach to phasing out certain plastic products.





# Science & Technology

## India's Growing Influence in Global Innovation

India is making remarkable progress in the field of innovation, as highlighted by the recent WIPO 2024 report. The country is emerging as a global leader in Intellectual Property (IP), with significant achievements in patent filings, trademarks, and industrial designs. These successes are driven by supportive government policies, a thriving startup ecosystem, and a strong focus on local innovation. As India moves towards becoming a knowledge-driven economy, its impact on the global stage continues to grow.

### India's Achievements in Intellectual Property:

- ❖ **Patent Filings:** India now ranks 6th globally in patent filings, with 64,480 patent applications in 2023—a 15.7% increase from the previous year. This marks the fifth consecutive year of double-digit growth, reflecting India's growing capacity as a hub for innovation.
- ❖ **Resident Filings Dominate:** For the first time, 55.2% of India's patent applications came from residents, signaling the rise of domestic innovation. Indian companies, universities, and research institutions are now major contributors to technological advancements, supported by government initiatives like the National Intellectual Property Rights (IPR) Policy and the Atmanirbhar Bharat campaign.
- ❖ **Growth in Patent Grants:** India recorded a staggering 149.4% increase in patent grants in 2023, highlighting the efficiency of its patent offices. This surge reflects the higher quality of applications, meeting global standards and showcasing India's maturing ecosystem for technological and scientific development.
- ❖ **Patent-to-GDP Ratio:** India's patent-to-GDP ratio has grown significantly, from 144 in 2013

to 381 in 2023. This increase indicates that innovation is becoming a central pillar of India's economic growth, signaling a transition towards a knowledge-driven economy.

- ❖ **Industrial Design Applications:** India experienced a 36.4% growth in industrial design applications in 2023, emphasizing its expanding focus on creativity, design, and manufacturing innovation.
- ❖ **Sectoral Focus:** Key sectors leading industrial design filings include:
  - » Textiles and Accessories
  - » Tools and Machines
  - » Health and Cosmetics
- ❖ These sectors account for nearly half of all design filings, showcasing India's strength in traditional industries like textiles and emerging sectors such as healthcare and fashion.

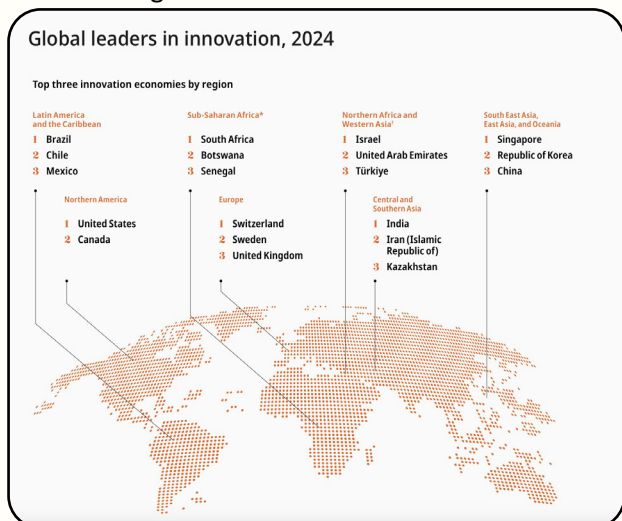
### Impact on Manufacturing:

- ❖ The rise in design applications reflects the transformation of India's manufacturing sector, moving beyond basic production to value-added, design-driven industries. This shift positions India as a global manufacturing hub emphasizing aesthetics, functionality, and user experience.

### Trademarks:

- ❖ India ranked 4th globally in trademark filings, recording a 6.1% growth in 2023.
- ❖ **Resident Filings Lead:** Nearly 90% of India's trademark filings were made by Indian residents, reflecting a strong focus on protecting domestic brands. This indicates that Indian businesses, startups, and entrepreneurs are becoming increasingly aware of the importance of brand protection.

- ❖ **Active Trademark Registrations:** India now has the second-largest number of active trademark registrations globally, with over 3.2 million trademarks in force. This underscores a vibrant domestic marketplace and growing international demand for Indian brands.
- ❖ **Sectoral Trends:** Top sectors for trademark filings include:
  - » Health (21.9%)
  - » Agriculture (15.3%)
  - » Clothing (12.8%)
- ❖ These figures highlight India's leadership in pharmaceuticals, food production, and fashion, where trademarks are critical for safeguarding brand equity and maintaining competitive advantages.



### Key Factors Driving India's IP Growth:

- ❖ **National IPR Policy:** The National Intellectual Property Rights Policy (2016) has been instrumental in fostering an innovation-friendly ecosystem. Its key elements include:
  - » **Amendments to IPR Laws:** Streamlining procedures to expedite application processing.
  - » **Modernization of IP Offices:** Digitization and workflow improvements to enhance efficiency.
  - » **Awareness Programs:** Initiatives like the National Intellectual Property Awareness Mission (NIPAM) educate businesses and institutions about IP rights.
  - » **IP Commercialization:** Establishment of

Technology Innovation Support Centres (TISCs) to facilitate the commercialization of patents and other IP.

### SPRIHA and IPR Chairs:

- ❖ The Scheme for Pedagogy and Research in IPRs for Holistic Education and Academia (SPRIHA) has integrated IPR education into higher learning institutions, fostering specialized research and training in intellectual property.

### Support for Startups and Entrepreneurs:

- ❖ Programs like Startup India, Digital India, and Atal Innovation Mission (AIM) have nurtured entrepreneurship and innovation.
  - » **Startup India:** Recognized over 1,49,414 startups by 2024, fostering a robust startup ecosystem.
  - » **Atal Innovation Mission:** Established 10,000 Atal Tinkering Labs in schools and incubated over 3,500 startups, creating more than 32,000 jobs.
- ❖ These initiatives promote grassroots innovation and ensure that intellectual property becomes a key part of entrepreneurial strategies.

### India's Role in Global IP Trends:

- ❖ **Contribution to Global Growth:** In 2023, a record 3.55 million patent applications were filed worldwide, with India contributing significantly to this growth. As one of the fastest-growing markets for IP filings, India is playing a critical role in shaping the global IP landscape, especially in emerging markets.
- ❖ **Shift Towards Local Innovation:** India's growing share of resident filings demonstrates a shift towards local innovation. This trend is a testament to the maturity of India's innovation ecosystem, driven by research institutions, startups, and corporations focusing on homegrown solutions.

### The Road Ahead:

- ❖ India's achievements in intellectual property as highlighted in the 2024 WIPO Report reflect its emergence as a global innovation powerhouse. The consistent growth in patents, trademarks, and industrial designs underscores the country's diverse economy and its emphasis on research and development.

- ❖ With strong government support, a vibrant startup ecosystem, and an increasing focus on local innovation, India is poised to maintain its upward trajectory in global IP rankings. Its growing influence in the global intellectual property landscape will not only drive economic growth but also position India as a leader in creativity, technology, and innovation on the world stage.

### Conclusion:

India's remarkable progress in intellectual property is

a clear indication of its potential to become a global leader in innovation. By leveraging government initiatives, fostering entrepreneurship, and embracing local creativity, India is well on its way to transforming into a knowledge-driven economy. As India continues to strengthen its position in global IP trends, its contributions to economic development and technological advancement will only grow stronger, ensuring a lasting impact on the global innovation ecosystem.

# Short Issues

## Crucial Data on Solar Eruptions from Aditya-L1 Mission

### Why in News:

India's Aditya-L1 mission, launched in September 2023, has delivered its first significant scientific results through its primary payload, the Visible Emission Line Coronagraph (VELC), developed by the Indian Institute of Astrophysics (IIAP).

- VELC has enabled precise measurements of coronal mass ejections (CMEs), massive solar eruptions that can disrupt Earth's technological systems, including satellite communications and electronics.

### Implications for Space Weather Forecasting:

- The data gathered by Aditya-L1 will not only enhance our understanding of solar activity but also help in predicting space weather events with greater accuracy.
- CMEs, when directed toward Earth, can interfere with satellite systems, GPS networks, and even power grids. With VELC's ability to observe these eruptions in their infancy, space weather predictions can be made with much greater precision, providing a lead time for mitigating potential disruptions to Earth's technological systems.

### About Aditya-L1 mission:

- The Aditya-L1 mission is India's pioneering space-based solar observatory, launched on September

2, 2023, by the Indian Space Research Organisation (ISRO).

- It aims to study the Sun's upper atmospheric dynamics, coronal heating, and solar wind acceleration. Aditya-L1, stationed at the Earth-Sun Lagrange point (L1), is ideally positioned to monitor solar phenomena continuously.

### Key Objectives:

- Understand Coronal Heating and Solar Wind Acceleration
- Study initiation of Coronal Mass Ejection (CME) and solar flares
- Analyze coupling and dynamics of the solar atmosphere
- Investigate solar wind distribution and temperature anisotropy

### Payloads:

- Visible Emission Line Coronagraph (VELC)
- Solar Ultra-violet Imaging Telescope (SUIT)
- Solar Low Energy X-ray Spectrometer (SoLEXS)
- High Energy L1 Orbiting X-ray Spectrometer (HEL1OS)
- Aditya Solar Wind Particle Experiment (ASPEX)
- Plasma Analyser Package for Aditya (PAPA)
- Advanced Tri-axial High-Resolution Digital Magnetometers (MAG)

### Significance:

- India's first space-based solar mission
- Expands ISRO's scientific capabilities beyond Earth's orbit
- Enhances space weather prediction capabilities

- Advances India's expertise in solar physics and space technology
- Positions ISRO among leading space agencies globally

### Lagrangian Point 1 (L1):

- Gravitationally stable point between Earth and Sun
- Provides uninterrupted view of the Sun
- Ideal for solar observations and space weather monitoring.

## RNA Editing

### Why in News:

In a recent scientific advancement, Wave Life Sciences, a U.S.-based biotechnology company, achieved a pioneering clinical application of RNA editing to treat a genetic disorder, specifically  $\alpha$ -1 antitrypsin deficiency (AATD).

### About RNA Editing:

- RNA editing refers to the modification of messenger RNA (mRNA) nucleotides after DNA has created the mRNA but before the mRNA is used in protein synthesis.
- Unlike DNA editing, which permanently alters the genome, RNA editing allows temporary modifications that do not alter the underlying genetic code.

### RNA Comprises:

- Exons:** Coding regions responsible for protein production.
- Introns:** Non-coding segments removed before translation.
- RNA editing modifies the exons or the coding regions, allowing scientists to alter protein outcomes without changing the DNA itself.

### Types of RNA Editing:

- Addition:** A new nucleotide is inserted into the RNA sequence.
- Deletion:** A nucleotide is removed.
- Substitution:** One nucleotide is replaced with another.

### Mechanism Behind RNA Editing:

- The RNA editing technique relies on enzymes known as adenosine deaminases acting on RNA (ADAR). These enzymes specifically modify adenosine bases in RNA, changing them into inosine, which can then be read differently during

protein synthesis.

- Scientists use a guide RNA (gRNA) to direct ADAR to a target mRNA sequence, allowing precise alterations in the RNA and enabling it to produce a modified protein as needed. This approach was used by Wave Life Sciences in their WVE-006 therapy to address AATD, underscoring RNA editing's therapeutic potential.

### RNA Editing vs. DNA Editing

Aspect	DNA Editing	RNA Editing
Permanence	Permanent genome alterations that are irreversible.	Temporary, fading over time for reversibility.
Immune Response	Often involves bacterial-derived tools (e.g., CRISPR) that may trigger immune reactions.	Uses ADAR, naturally found in human cells, lowering immune risks.

### Advantages of RNA Editing:

- Temporary Modifications:** RNA editing allows changes that wear off over time, giving patients flexibility to discontinue if any issues arise.
- Reduced Immune Reaction:** As ADAR enzymes naturally exist in human cells, RNA editing may present a lower risk of immune responses compared to DNA editing, making it suitable for patients requiring repeated treatments or those sensitive to immune triggers.

### Current Challenges in RNA Editing

- Despite its potential, RNA editing faces several hurdles:
  - » **Temporary Effects:** Since RNA changes are not permanent, treatments need to be administered repeatedly to maintain the desired effect.
  - » **Delivery Limitations:** Current delivery methods, such as lipid nanoparticles and Adeno-Associated Virus (AAV) vectors, can be limited in capacity, especially for larger therapeutic molecules. This restricts RNA editing's potential to treat complex diseases and necessitates innovation in delivery techniques.

### Conclusion:

RNA editing presents a transformative step in



genetic medicine, offering precision and adaptability in treating genetic disorders. By combining the flexibility of temporary modifications with a lower risk of immune responses, RNA editing may pave the way for personalized, responsive treatments. With further progress in overcoming its current limitations, RNA editing stands to revolutionize how genetic and complex diseases are approached, opening new avenues for innovative therapies aimed at enhancing patient outcomes and quality of life.

## DoPT Report Reveals Growing Cybersecurity Threats

### Why in News:

The Department of Personnel and Training (DoPT) annual report for 2023-24, released in November 2024, raises serious concerns regarding the state of cybersecurity in India, particularly in the context of national security risks.

- The report highlights a sharp increase in cybercrime incidents, including:
  - » A ransomware attack on a defence unit,
  - » A massive data breach affecting millions of Indian citizens,
  - » Malicious cyberattacks targeting critical infrastructure.

### Key Highlights from the DoPT Report:

- **Ransomware Attack on a Defence Unit:** In 2023, a critical defence unit was hit by a ransomware attack. Ransomware encrypts a target’s data and demands a ransom to unlock it. The attack blocked access to vital computer systems, emphasizing the growing vulnerability of India’s defence infrastructure to cyber threats.
- **Data Breach Affecting 81 Crore Indians:** The Indian Council of Medical Research (ICMR) suffered a major data breach. The breach was discovered by Resecurity, a U.S.-based cybersecurity firm, in October 2023. This breach exposed serious flaws in India’s data protection mechanisms, with potential risks to citizens’ privacy and identity theft.
- **Malware Attack on Ministry:** A malware attack targeted a government ministry in 2023.
- **Impact of Malware:** Malware attacks can cause significant disruptions, such as the theft of classified information or disruption of essential services. This underscores the need for heightened

vigilance and security protocols in government systems.

- **DDOS Attacks on Critical Infrastructure:** A Distributed Denial-of-Service (DDOS) attack targeted critical infrastructure, including airports in India.

### How DDOS Works:

- DDOS attacks overwhelm servers with massive traffic, rendering them inoperable and causing service disruptions.

### Increase in Cybersecurity Incidents

- CERT-In (Indian Computer Emergency Response Team) reported a dramatic increase in cybersecurity incidents.
- 15,92,917 incidents were recorded in 2023, compared to just 53,117 in 2017. These incidents included a range of threats such as:
  - » Website intrusions,
  - » Malware propagation,
  - » Phishing attacks,
  - » DDOS attacks, and
  - » Unauthorized network activities.



### Types of frauds:

- **Crypto Fraud:** CBI uncovered a \$2 million cryptocurrency scam tied to a fraudulent tech support call centre. The CBI also exposed a large-scale crypto mining scam in India, where perpetrators misled citizens into investing ₹100 crore in fake crypto mining operations.
- **Call Centre Frauds:** The CBI dismantled several call centre fraud networks operating in India, targeting citizens in countries like the U.S. and Canada. These networks were involved in fraudulent schemes, costing victims millions of dollars.
- **Investment and Loan App Frauds:** The CBI also investigated investment and loan app frauds,

where fraudulent operations targeted citizens, particularly those from neighboring countries. These apps often used deceptive tactics to trap unsuspecting investors.

### Changing Landscape of Cybersecurity Coordination:

- In September 2023, the Cabinet Secretariat amended the Allocation of Business Rules, placing the National Security Council Secretariat (NSCS) under the National Security Adviser (NSA), Ajit Doval, as the primary agency responsible for providing strategic direction on cybersecurity.
- MeitY (Ministry of Electronics and Information Technology) was designated to oversee telecom network security, while the Ministry of Home Affairs (MHA) was given responsibility for handling cybercrimes.

## India Successfully Tests Long Range Land Attack Cruise Missile Off Odisha's Coast

### Why in News:

India successfully conducted the maiden flight-test of its Long Range Land Attack Cruise Missile (LRLACM) from the Integrated Test Range (ITR) at Chandipur, Odisha. This test represents a major advancement in India's defense capabilities, particularly in its missile technology.

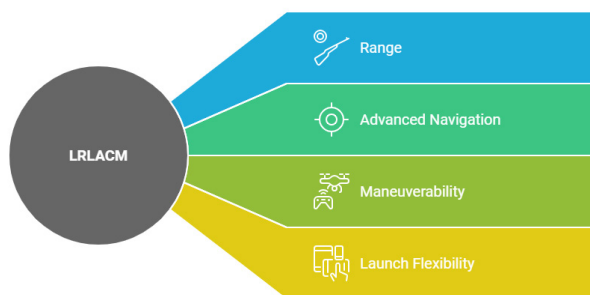
### Key Features of the LRLACM:

- **Range:** The missile has a range of over 1,000 kilometers, providing India with significant standoff capability to strike strategic land-based targets well behind enemy lines.
- **Advanced Navigation:** Equipped with a waypoint navigation system, the missile follows a precise, pre-determined flight path to ensure accuracy and reliability in hitting its target.
- **Maneuverability:** The LRLACM is capable of performing complex maneuvers, including changes in altitude and speed, which makes it difficult to intercept and evade detection.
- **Launch Flexibility:** The missile can be launched from both ground-based mobile platforms and naval vessels, giving it strategic flexibility across different domains of warfare.

### Development and Production:

- **Development Lead:** The missile was developed by the Aeronautical Development Establishment (ADE) in Bengaluru, under the umbrella of the Defence Research and Development Organisation (DRDO).
- **Collaboration:** The missile's design and testing involved contributions from other DRDO laboratories and key Indian defense industries, including Bharat Dynamics Limited (BDL) and Bharat Electronics Limited (BEL).
- **Indigenous Production:** These Indian companies are responsible for the integration, production, and supply of key components, ensuring that India reduces its reliance on foreign suppliers for critical defense technologies.

Unveiling the LRLACM's Strategic Dimensions



### Strategic Importance:

- **Enhanced Strike Capability:** With its long range, the missile provides India with a potent tool to target critical infrastructure or military assets deep inside enemy territory.
- **Strategic Deterrence:** The missile strengthens India's deterrence capabilities, ensuring that it can respond effectively to potential threats from regional adversaries.
- **Self-Reliance in Defense:** The LRLACM is a testament to India's focus on "Make in India" for defense, showcasing the country's ability to develop cutting-edge technologies domestically and reducing dependence on foreign arms suppliers.

### Geopolitical and Defense Implications:

- **Regional Security:** The LRLACM enhances India's capability to maintain regional security and stability by providing a credible long-range strike

option, crucial in dealing with emerging security challenges.

- **Global Positioning:** With this missile, India joins an elite group of nations, such as the United States, that possess advanced long-range, precision-guided cruise missiles, which can play a key role in global defense dynamics.
- **Flexibility for Armed Forces:** The dual-launch platform (land and sea) of the missile increases its versatility, providing both Indian Army and Indian Navy with a strategic advantage in various scenarios.

## PAIR Programme to Boost Research and Innovation in Higher Education

### Why in News:

The Indian government, through the Anusandhan National Research Foundation (ANRF), has launched the Partnerships for Accelerated Innovation and Research (PAIR) programme to enhance research-driven higher education across the country.

### Key Objectives of the PAIR Programme

- **Enhancing Research Excellence**
  - » Cultivate a culture of research excellence in central and state public universities.
  - » Improve the overall quality of academic research across India.
- **Fostering Collaborative Partnerships**
  - » Bridge the gap between institutions of varied research capabilities.
  - » Pair emerging universities with top-tier institutions to foster innovation through mentorship and knowledge exchange.
- **Transforming the Research Ecosystem**
  - » Enhance the research capabilities, particularly in universities with nascent infrastructure.
  - » Develop a robust and dynamic research ecosystem in India.

### How the PAIR Programme Works:

The PAIR programme follows a hub-and-spoke model:

- **Hub Institutions**
  - » These are top-ranked universities in India, such as the top 25 NIRF-ranked institutions and Institutions of National Importance (INIs).
  - » These institutions will serve as hubs and

are well-established with strong research infrastructure and expertise.

- **Spoke Institutions**

- » Spoke institutions include central and state public universities with growing research capabilities, as well as select NITs and IIITs.
- » These institutions may not have the same level of research infrastructure as the hubs but are poised for growth in research.

## ANRF's Partnerships for Accelerated Innovation and Research (PAIR) Program

### Objective

- Transforming Research and Innovation in Indian Universities
- Fostering research excellence in universities, aligned with NEP 2020

### Eligibility

#### Hub Institutions

- Top 25 NIRF-ranked institutions
- Institutions of National Importance within top 50 of the NIRF ranking

#### Spoke Institutions

- Central and State Public Universities
- Selected NITs and IIITs



- **Mentorship and Knowledge Exchange**

- » Hub institutions will provide mentorship and guidance on research activities, and offer access to resources and expertise from top-tier faculty and researchers.
- » Spoke institutions will benefit from multi-departmental faculty collaboration, encouraging interdisciplinary research.

- **Collaboration Model**

- » Each PAIR network will consist of one hub and up to seven spoke institutions.
- » Only one proposal per hub institution is allowed, with a mandatory involvement of multi-departmental faculty teams from spoke institutions.

### Benefits of the PAIR Programme

- The mentorship-driven approach will foster innovation at spoke institutions, leveraging the resources and expertise of hub institutions.
- This will drive new research outcomes with significant national and global impact.
- By fostering collaboration between institutions,

the PAIR programme will help create a strong research network in India, encouraging cross-institutional partnerships and the sharing of best practices and advanced infrastructure.

### Alignment with National Education Policy (NEP) 2020:

- The PAIR programme aligns closely with the National Education Policy (NEP) 2020, which aims to create a more research-oriented, innovative, and collaborative education system in India.
  - » **Promoting Research at Universities:** The NEP encourages the creation of a research culture in higher education. The PAIR programme directly supports this by enhancing research excellence across universities.
  - » **Encouraging Collaborative Approaches:** The NEP stresses the importance of inter-institutional collaborations to build a more knowledge-driven ecosystem. The PAIR programme's hub-and-spoke model is a practical manifestation of this vision.

## Assam Semiconductor Plant

### Why in News:

India is poised to make a significant leap in its semiconductor manufacturing capabilities with the construction of a cutting-edge semiconductor facility in Morigaon, Assam.

- Spearheaded by Tata Semiconductor Assembly and Test Pvt Ltd (TSAT), the ₹27,000 crore project is set to become a cornerstone of India's ambition to establish a self-sufficient semiconductor ecosystem.

### Key features of the plant:

- **Production Capacity:** The Morigaon facility is expected to produce up to 48 million semiconductor chips per day, utilizing advanced packaging technologies such as flip chip and Integrated System in Package (ISIP).
- **Sector Focus:** The facility will primarily serve sectors including automotive, electric vehicles (EVs), telecommunications, and consumer electronics, all of which rely heavily on semiconductor components.

### About semiconductor:

- A semiconductor is a material that has electrical

conductivity between that of a conductor (like metals) and an insulator (like rubber or glass). It can conduct electricity under certain conditions but not others, making it essential for modern electronic devices. The most common semiconductor materials are silicon and germanium.

- Semiconductors are used to create electronic components like diodes, transistors, and integrated circuits (ICs), which form the foundation of most modern electronic devices such as smartphones, computers, televisions, and automobiles. Their ability to control the flow of electricity is crucial for amplifying signals, switching electronic signals, and storing data.

### India's Semiconductor Ambition:

- The Morigaon facility is part of India's broader semiconductor strategy, guided by the India Semiconductor Mission (ISM). This initiative aims to build a comprehensive, sustainable semiconductor ecosystem that spans design, fabrication, assembly, testing, and packaging.
- Indian semiconductor market is projected to grow from \$38 billion in 2023 to \$109 billion by 2030, highlighting the urgent need for robust domestic production.

### Key Initiatives:

- **Semicon India Program:** Launched in 2021 with a financial outlay of ₹76,000 crore, this program provides incentives to foster the semiconductor ecosystem across India. It includes initiatives for setting up semiconductor fabrication plants (fabs), packaging facilities, Outsourced Semiconductor Assembly and Testing (OSAT), and other critical infrastructure.
- **Expanding Semiconductor Production:** In addition to Morigaon, other semiconductor projects are underway across India, such as Tata Electronics' facility in Dholera, Gujarat, and CG Power's plant in Sanand, Gujarat.

### Government Support

- **Financial Incentives:** In addition to Semicon India, the Indian government has implemented various schemes such as the Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPM-ES) and the Production Linked Incentive (PLI) Scheme for Large-Scale Electronics. These programs incentivize the establishment of semiconductor manufacturing units and components.



## India's Growing Role in the Global Semiconductor Ecosystem:

- **Global Semiconductor Demand:** The worldwide demand for semiconductors is surging due to applications in 5G, Artificial Intelligence (AI), automotive electronics, and consumer electronics.
- **Addressing Global Shortages:** India's growing semiconductor infrastructure is poised to play a critical role in mitigating the global semiconductor shortage and ensuring a diversified, secure supply chain.
- **Digital Economy:** India's semiconductor industry aims to secure a significant position in the global digital economy, driving innovation, economic growth, and new opportunities for international trade and investment.

## India's First Direct-to-Device Satellite Internet Service

### Why in News:

BSNL (Bharat Sanchar Nigam Limited), India's state-owned telecom operator, has officially launched the country's first direct-to-device satellite internet service. This pioneering initiative is set to revolutionize internet connectivity, especially in remote, underserved regions where traditional broadband infrastructure has been difficult to deploy.

### Key Features of BSNL's Satellite Internet Service:

- The service offers fast internet access, enabling users to browse websites, stream videos, engage in social media, and carry out other online activities without interruptions.
- The satellite network ensures extensive coverage, reaching areas that traditional broadband services often fail to cover, particularly in remote and rural regions of the country.
- The service allows users to make emergency calls and send SOS messages when cellular or Wi-Fi networks are unavailable. Additionally, users can make UPI payments in such emergency situations, which is particularly crucial in remote areas where no alternative network options exist.

### What is D2D Satellite Internet?

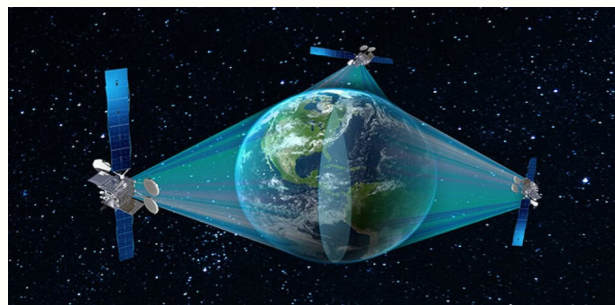
- D2D satellite internet provides internet connectivity directly to user devices (smartphones,

laptops, tablets) via satellites in orbit.

- It bypasses traditional terrestrial infrastructure like cell towers and fiber-optic cables, enabling internet access in remote and underserved regions.

### Key Characteristics of D2D Satellite Internet:

- **Satellite-based:** Uses satellites in Geostationary Orbit (GEO), Low Earth Orbit (LEO), or Medium Earth Orbit (MEO) to transmit data.
- **Direct-to-device:** No need for satellite dishes or receivers; connects directly to user devices.
- **Wireless:** Operates wirelessly using Radio Frequency (RF) signals for data transmission, similar to cellular or Wi-Fi networks.
- **Global Coverage:** Provides internet access in remote, rural, and disaster-stricken areas, where traditional broadband infrastructure is unavailable.



### How D2D Satellite Internet Works:

- **Device-Satellite Communication:** User devices communicate wirelessly with satellites in orbit using advanced signal optimization technologies like beamforming.
- **Data Relay to Network Operations Center (NOC):** Satellites relay data to a central hub (NOC), which monitors and manages the network traffic.
- **Connection to the Internet Backbone:** The NOC connects to the global internet backbone, facilitating data exchange across the internet.
- **Data Transmission Back to the Device:** Data is sent back from the NOC to the satellite, then downlinked to the user's device.

### Benefits of D2D Satellite Internet:

- **Remote Coverage:** Provides connectivity in areas with no traditional broadband infrastructure, such as rural and mountainous regions.
- **Reliable Connectivity:** Less affected by natural disasters or geographical barriers compared to ground-based networks.
- **Mobility:** Enables connectivity even while

traveling, whether on the move, in-flight, or on ships.

- **Quick Deployment:** Faster to deploy than traditional broadband infrastructure, making it ideal for emergency situations and remote regions.

#### Examples of D2D Satellite Internet Services:

- BSNL's satellite internet service (India).
- SpaceX's Starlink (Global).
- Amazon's Kuiper Systems (Global).
- OneWeb (Global).
- Apple's Emergency SOS via Satellite.

## India's First Indigenous Antibiotic: Nafithromycin

### Why in News:

India has taken a significant step in the fight against Antimicrobial Resistance (AMR) with the soft launch of Nafithromycin, the country's first indigenous antibiotic. Announced by Union Minister Dr. Jitendra Singh, Nafithromycin is designed to treat Community-Acquired Bacterial Pneumonia (CABP), a global health concern exacerbated by drug-resistant bacteria.

- Developed with support from the Biotechnology Industry Research Assistance Council (BIRAC), this new antibiotic offers a promising solution in the battle against AMR.

### Key Features of Nafithromycin:

- **Ten Times More Effective:** Nafithromycin has been shown to be ten times more effective than existing antibiotics like azithromycin, offering a significant advantage against drug-resistant pneumonia.
- **Shorter Treatment Course:** Unlike traditional antibiotics that require extended treatment, Nafithromycin offers a more convenient 3-day regimen, enhancing patient compliance and effectiveness.
- **Broader Pathogen Coverage:** This antibiotic targets both typical and atypical pathogens, filling a critical gap in antibiotic development. No new antibiotics in this class have been developed in over 30 years.
- **Superior Safety and Tolerability:** Clinical trials have demonstrated Nafithromycin's minimal gastrointestinal side effects, no significant drug-food interactions, and high patient tolerance, making it suitable for a wide range of individuals.

**India's First Indigenous Antibiotic**  
**NAFITHROMYCIN**

**A milestone in combating antimicrobial resistance (AMR)**

- Developed by BIRAC (Biotechnology Industry Research Assistance Council)  
14 years of research, ₹500 crore investment
- 10x More Effective:** Targets drug-resistant pneumonia
- 3-Day Regimen:** Faster, safer, and more tolerable
- Global Breakthrough:** First in its class in 30+ years
- Marketed as "Miqnaf" by Wolkardt Pharma

### Addressing the Global AMR Crisis:

- **Global Threat of AMR:** Antimicrobial Resistance (AMR) is one of the biggest challenges in global healthcare. It makes infections more difficult to treat, increases disease severity, and drives up healthcare costs. Pneumonia, responsible for over 2 million deaths annually, contributes significantly to the global burden, with India accounting for 23% of these cases.
- **Development Milestones:** Nafithromycin's development took 14 years, with an investment of ₹500 crores. Clinical trials were conducted across the U.S., Europe, and India, ensuring the antibiotic's effectiveness in diverse populations.

### Significance for India:

- **Public-Private Collaboration:** The creation of Nafithromycin highlights the successful collaboration between the government, research institutions, and the pharmaceutical industry, strengthening India's ability to develop homegrown healthcare solutions.
- **Global Health Leadership:** The launch positions India as a critical player in the global effort against AMR, contributing to global awareness, especially during World AMR Awareness Week.

### What is Antimicrobial Resistance (AMR)?

- Antimicrobial Resistance occurs when microorganisms, including bacteria, viruses, fungi, and parasites, evolve to resist the drugs designed to kill or inhibit their growth. This resistance makes

infections more difficult to treat, resulting in longer illnesses, higher healthcare costs, and increased mortality.

- While AMR can naturally occur over time through genetic changes, its spread has been accelerated by the overuse and misuse of antimicrobial drugs, such as antibiotics, antivirals, antifungals, and antiparasitic medications.

## World's First Parallel Satellite Pair

### Why in News:

India's Polar Satellite Launch Vehicle (PSLV) recently launched the Proba-3 mission. In collaboration with the European Space Agency (ESA), this mission deployed the world's first pair of satellites flying in parallel formation to study the Sun's outer atmosphere, the solar corona.

### About Proba-3 Mission:

- The mission involved two satellites:
  - » One with a coronagraph to observe the Sun, and the other with an occulting device to block the Sun's intense light, enabling the study of the solar corona.
- The satellites new in formation, 150 meters apart, then separated and rendezvous.

### Laser Guidance:

- A laser from one satellite was reflected off the other to maintain precise alignment with millimeter-level accuracy.

### Collision Avoidance and Autonomy

- The satellites autonomously adjusted their positions to prevent collisions or drifting, demonstrating advanced navigation for future missions.

### Highly Elliptical Orbit

- The satellites were launched into an elliptical orbit with a perigee of 600 km and apogee of 60,530 km, before entering a parallel orbit for their mission.

### Advantages of Two Satellites:

- Separate satellites allow for larger instruments, capturing fainter signals and improving solar study depth.
- This setup enables more detailed analysis of the solar corona's structure and behavior.

### Key Milestones:

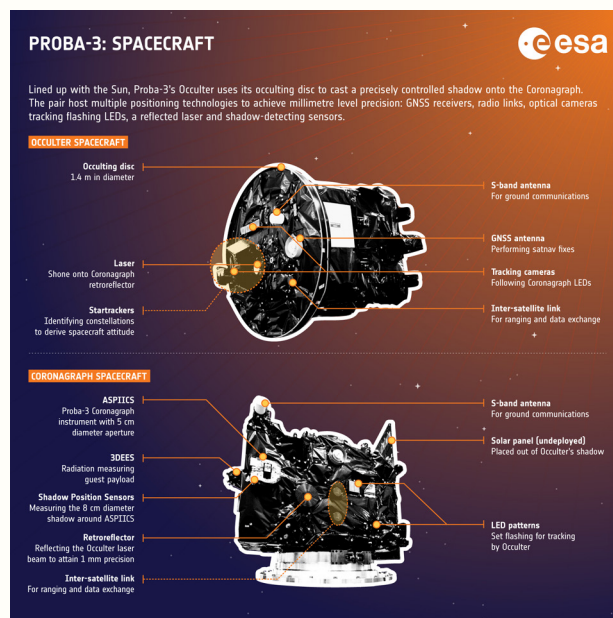
- Formation Flying Precision:** Proba-3 maintained millimeter-level accuracy in formation flying, surpassing previous missions, and enabling more complex space operations.
- Autonomous Navigation:** The satellites' ability to autonomously adjust positions for collision avoidance demonstrates critical advancements for future space missions involving multiple spacecraft.

### PSLV's Role

- India's PSLV launched the Proba-3 mission, showcasing ISRO's reliability and leadership in space exploration.

### Collaboration with ESA

- The mission highlights India's growing role in global space research through its partnership with the European Space Agency (ESA).



### About ISRO:

- The Indian Space Research Organisation (ISRO) is India's national space agency, established in 1969, headquartered in Bengaluru, Karnataka.
- It is responsible for the development of space technologies and the application of these technologies for various national and international purposes.

### Key Achievements of ISRO:

- Orbital Launch Capability:** ISRO became the



7th country to send objects into orbit with own launch vehicle, with the successful launch of SLV-3 in 1980.

- **Operational Cryogenic Rocket Engine:** ISRO developed a cryogenic engine, making India one of six nations with this technology.
- **Water on the Moon:** Chandrayaan-1 discovered water on the Moon, making India the fourth country to reach the lunar surface.
- **Mars Orbiter Mission (MOM):** India became the first nation to reach Mars on its first attempt, and the fourth globally to do so.
- **Chandrayaan-3:** Successfully soft landing on Moon's south pole, making India the fourth country to achieve this.
- **Aditya-L1 Mission:** India's first mission to study the Sun's outer layer (solar corona).

## Venus Mission "Shukrayaan"

### Why in News:

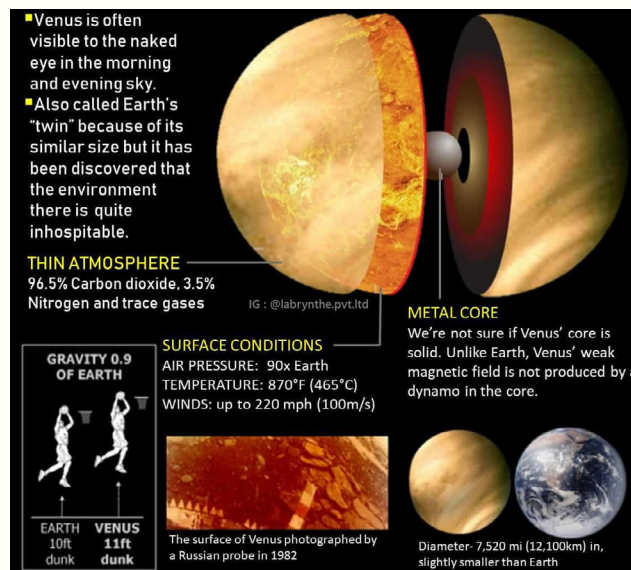
The Indian government has approved Shukrayaan, India's ambitious Venus Orbiter Mission (VOM), set for launch in March 2028. This landmark mission will mark India's entry into Venus exploration, targeting the study of the planet's extreme environmental conditions.

### Mission Objectives:

- Shukrayaan aims to enhance our understanding of Venus, often called Earth's "sister planet," by focusing on three key objectives:
  - » **Investigating Venus' Atmosphere:** The mission will study the composition, temperature, and pressure of Venus' dense atmosphere, dominated by carbon dioxide and sulfuric acid clouds. This will provide insights into the planet's extreme greenhouse effect.
  - » **Exploring Venus' Surface:** Using advanced radar and imaging systems, the spacecraft will map Venus' topography, geological features, and mineral composition, overcoming challenges posed by thick cloud cover.
  - » **Analyzing Venus-Sun Interaction:** Shukrayaan will examine how solar winds interact with Venus' magnetic field and study the Sun's impact on the planet's ionosphere, contributing to a better understanding of Venus' magnetic environment.

### Payloads and Technology:

- The spacecraft will carry 16 Indian-developed payloads and three international ones. Key instruments include:
  - » **Venus Surface Emissivity and Atmospheric Mapper (VSEAM):** A hyperspectral spectrometer for surface and atmospheric mapping.
  - » **Venus Ionospheric and Solar Wind particle AnalySer (VISWAS):** A plasma analyzer studying the ionosphere and solar wind interaction.
  - » **Venus InfraRed Atmospheric gases Linker (VIRAL):** A spectrometer analyzing atmospheric composition and temperature.



### Launch and Budget:

- The Shukrayaan mission is slated for launch aboard the LVM-3 (GSLV Mk III) launch vehicle, India's most powerful rocket. The spacecraft will be placed in orbit around Venus, where it will conduct a range of scientific experiments over the course of its mission.
- The estimated cost of the mission is approximately ₹1236 crores, reflecting the scale and complexity of the project. The mission's approval is a testament to the growing capabilities of the Indian Space Research Organisation (ISRO) and its determination to contribute to global space science.

### Other ISRO Ambitions:

- **Chandrayaan 4:**



- » Follow-up to Chandrayaan 3.
- » Collaboration with Japan.
- » Aims to land on the Moon's south pole, exploring water ice.
- » Features a 350 kg rover, 12 times larger than the previous one.
- **Gaganyaan Mission:**
  - » India's first manned mission to space, with an initial unmanned flight.
  - » Expected launch in two years, paving the way for Indian astronauts in space.
- **India's Space Station:**
  - » First module to launch in 2028.
  - » Smaller than the ISS, with five modules.
  - » Fully operational by 2035.

## Technology for Early HIV Detection

### Why in News:

Scientists at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India, have developed an innovative diagnostic platform for the early and accurate detection of HIV-1, the virus responsible for AIDS. The platform, known as GQ Topology-Targeted Reliable Conformational Polymorphism (GQ-RCP), targets G-Quadruplexes (GQ), unusual four-stranded DNA structures found specifically in the HIV genome.

### Current Limitations in HIV Detection:

- Existing diagnostic methods like ELISA (Enzyme-Linked Immunosorbent Assay) and PCR (Polymerase Chain Reaction) face major challenges:
  - » **Missed Early Infections:** Current tests often fail to detect HIV in its early stages, crucial for timely treatment.
  - » **False Positives:** Cross-reactivity in tests can lead to false positive results, causing misdiagnosis and unnecessary treatment.
  - » **Sensitivity and Time Constraints:** Many traditional tests have reduced sensitivity and require longer processing times, limiting their effectiveness in rapid diagnostics.

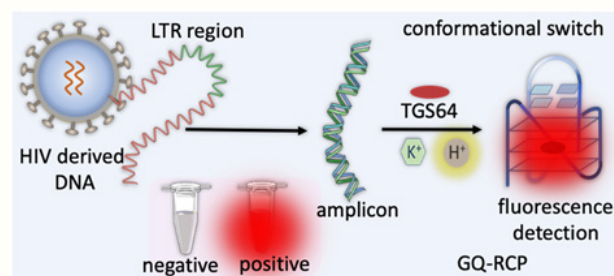
### The Role of G-Quadruplexes in HIV Detection:

- G-Quadruplex (GQ) structures are rare, four-stranded DNA formations found in specific regions of the HIV genome.
- Targeting GQs allows for more selective detection of HIV, offering a significant advantage over

traditional methods and reducing the occurrence of false positives.

### How the GQ-RCP Platform Works:

- The platform detects HIV-derived GQ DNA using reverse transcription and amplification of a 176-nucleotide long segment of the HIV genome.
- A pH-mediated transition converts double-stranded DNA (dsDNA) into the GQ conformation, which is then detected in a single-step, quantitative process.
- A benzobisthiazole-based fluorescent probe (TGS64) binds specifically to the GQ conformation, ensuring high selectivity and accuracy in detecting HIV.



### Advantages of the GQ-RCP Platform:

- **Increased Sensitivity and Accuracy:** The fluorometric detection method enhances sensitivity, allowing for detection of low levels of HIV DNA, which is crucial for early-stage detection.
- **Reduced False Positives:** By targeting the unique GQ structure, the platform minimizes cross-reactivity and false positives, common in traditional tests.
- **Rapid Testing:** The one-step process of the GQ-RCP platform speeds up testing, reducing overall processing time compared to traditional methods.
- **Versatility:** Originally designed for SARS-CoV-2, the platform is adaptable for HIV and can be used to detect other DNA/RNA-based pathogens, including various bacteria and viruses.

### Potential for Broader Application:

- The GQ-RCP platform's ability to detect both DNA and RNA-based pathogens makes it a versatile tool for diagnosing a wide range of infectious diseases, beyond HIV.
- This technology could revolutionize diagnostic processes, offering faster and more reliable tests globally for different pathogens, both viral and bacterial.

## About HIV:

- HIV (Human Immunodeficiency Virus) is a virus that targets and attacks the immune system.
- The virus specifically infects CD4 cells (also known as T cells), which are essential for immune defense.
- If left untreated, HIV weakens the immune system over time.
- As the immune system deteriorates, it can progress to AIDS (Acquired Immunodeficiency Syndrome).
- AIDS is the most severe phase of HIV infection.
- At the AIDS stage, the immune system is severely damaged, leaving the body vulnerable to: Opportunistic infections (infections that occur more easily due to a weakened immune system).

## India's 6GHz Spectrum Dilemma and Its Impact on PS5 Pro Launch

### Why in News:

In November 2024, the global launch of the PlayStation 5 Pro (PS5 Pro) excluded India due to unresolved regulatory issues regarding the 6GHz Wi-Fi band.

### Understanding the 6GHz Spectrum:

- The 6GHz spectrum (5,925 MHz - 7,125 MHz) is integral to Wi-Fi 6E technology, enabling:
  - » Faster data transfer speeds (up to 9.6 Gbps).
  - » Reduced latency and network congestion.
  - » Enhanced performance for gaming, streaming, and IoT devices.
- Wi-Fi 6E expands on Wi-Fi 6 by using the 6GHz band alongside the 2.4GHz and 5GHz bands, providing stable connections and alleviating congestion in high-density environments.



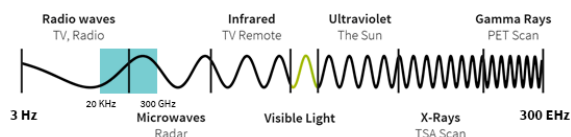
### Global Trend: Adoption of the 6GHz Band:

- Since 2021, nations like the U.S., U.K., South Korea, Japan, and UAE have delicensed the 6GHz spectrum for Wi-Fi use, facilitating the rise of Wi-Fi 6E and compatible devices. However, India and

China have yet to approve this, creating disparities in technological access.

### The 6GHz Spectrum Debate in India:

- In India, the Indian Space Research Organisation (ISRO) holds the rights to the 6GHz spectrum for satellite communication.
  - » **Tech Companies' Stand:** Firms like Google, Meta, and Amazon advocate for delicensing the band for Wi-Fi, arguing it would improve internet speeds and connectivity without interfering with satellite services.
  - » **Telecom Operators' Demand:** They push for allocating the spectrum to 5G and 6G networks, enhancing mobile data speeds and increasing network capacity.
- The Department of Telecommunications (DoT) must decide on spectrum allocation by 2027, under a World Radiocommunications Conference (WRC) extension.



### Impact on Indian Electronics Market

- **Limited Device Performance:** Wi-Fi 6E routers in India cannot fully utilize their potential, limiting advancements in wireless connectivity.
- **Delayed Access to Technology:** High-performance devices like the PS5 Pro and other gadgets relying on Wi-Fi 6E and Wi-Fi 7 face delayed entry into the Indian market.
- **Slower Technological Adoption:** While Wi-Fi 6 (using only 2.4GHz and 5GHz bands) improves connectivity, its capabilities fall short without the 6GHz spectrum.

### Conclusion:

India's indecision on the 6GHz spectrum has implications for connectivity, technological innovation, and consumer access to advanced electronics. A resolution balancing the demands of telecom, tech firms, and satellite services is vital for future progress.



# Economy



## Public Distribution System (PDS): An Essential Instrument for Food Security in India

The Public Distribution System (PDS) is one of the largest government mechanisms for ensuring food security in India. Serving over 813.5 million people, it is among the world's largest food distribution programs. The PDS provides subsidized food grains to the economically disadvantaged, making it crucial for combating hunger and malnutrition in India.

### Historical Context and Evolution:

- ❖ The PDS began during the Second World War when food supplies were scarce, and the government introduced food control mechanisms. The Bengal famine of 1943 highlighted the need for a formal food distribution system. Over time, the PDS expanded, with the Revised Public Distribution System (RPDS) in 1992 focusing on remote areas, and the Targeted Public Distribution System (TPDS) in 1997 targeting Below Poverty Line (BPL) families.
- ❖ In 2013, the National Food Security Act (NFSA) extended food coverage and made food a legal entitlement for a significant portion of the population.

### Objectives of the PDS:

The primary objectives of the PDS are:

- ❖ **Provide essential food items at affordable prices:** Aimed at alleviating food insecurity among vulnerable populations.
- ❖ **Stabilize prices:** PDS helps control the market prices of essential commodities, ensuring price stability.
- ❖ **Prevent hoarding and black marketing:** By ensuring a steady supply of food grains, PDS curtails market manipulation.
- ❖ **Combat hunger and malnutrition:** PDS targets food insecurity, especially in disadvantaged communities.

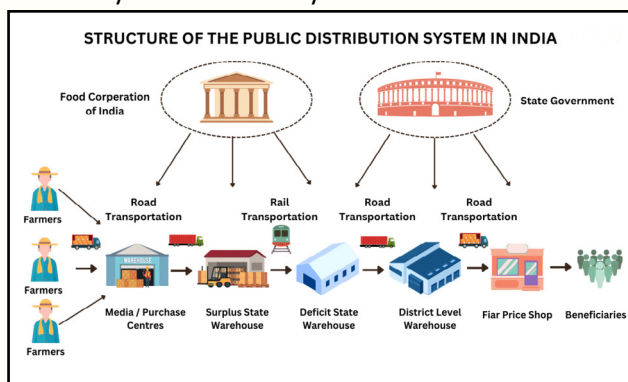
### Functioning of the Public Distribution System:

The PDS operates in four key stages: procurement, storage, allocation, and distribution.

- ❖ **Procurement of Food Grains:** The government, through the Food Corporation of India (FCI), procures food grains at a Minimum Support Price (MSP) to ensure fair compensation for farmers. This also helps in stabilizing market prices and ensuring adequate food supply, especially in times of scarcity. However, the open-ended

procurement policy sometimes causes price distortions due to surplus stocks.

- ❖ **Storage of Food Grains:** Once procured, food grains are stored by FCI in warehouses. Storage is a critical function, but there are challenges such as inadequate capacity and improper storage methods, leading to food deterioration or wastage. Inefficient storage management results in significant losses.
- ❖ **Allocation of Food Grains:** The central government allocates food grains to states, which then distribute them to eligible beneficiaries through Fair Price Shops (FPS). The allocation depends on the number of beneficiaries identified by the state governments. Issues such as the incorrect identification of BPL families have often led to inefficiencies in food distribution.
- ❖ **Transportation and Distribution:** The FCI handles the interstate transportation of grains, while state governments are responsible for last-mile delivery to consumers via FPS. However, challenges like leakage and diversion of grains during transportation persist, reducing the system's efficiency.



### Significance of the Targeted Public Distribution System (TPDS)

- ❖ The TPDS ensures that food grains are available at subsidized rates to families categorized as Below Poverty Line (BPL). This targeted approach helps in directing subsidies to the most vulnerable sections of society. The National Food Security Act (NFSA) of 2013 expanded the coverage of the PDS to nearly two-thirds of India's population, making food a legal entitlement for them. Under NFSA, over 80% of rural and 50%

of urban populations are eligible for subsidized food.

### Challenges Faced by the Public Distribution System

Despite its significant role, the PDS faces several challenges:

- ❖ **Leakage and Corruption:** Leakage is a significant problem in the PDS. Food grains meant for the poor often get diverted or sold in the open market. Reports suggest that nearly 28% of allocated grains fail to reach the intended beneficiaries, resulting in losses worth over Rs. 69,000 crore. Corruption at various levels of the distribution system, including bogus ration cards, has exacerbated the issue.
- ❖ **Inefficiency in Beneficiary Identification:** The identification of eligible beneficiaries for subsidized food has been flawed. Errors in categorization and fraudulent BPL identification have led to inefficiencies. Some non-needy families have been included, while genuinely needy families have been left out.
- ❖ **Inadequate Storage and Infrastructure:** The FCI's storage capacity has been inadequate, leading to food grains being wasted due to poor storage conditions. Additionally, transportation infrastructure is not always reliable, contributing to grain loss and diversion.
- ❖ **Regional Disparities:** The effectiveness of the PDS varies across states. While states like Bihar and West Bengal have improved their systems, northeastern states face challenges due to low digitalization and other infrastructure issues.

### Reforms in the Public Distribution System

Several reforms have been implemented to address these challenges:

- ❖ **Aadhaar Linking and Digitalization:** Linking PDS to Aadhaar has helped reduce fraud and ensure food reaches the right beneficiaries. Digitizing records has improved transparency and accountability.
- ❖ **Direct Benefit Transfer (DBT):** The DBT scheme transfers cash directly to beneficiaries, allowing them to buy food grains from any market. This system helps reduce leakage and corruption, providing beneficiaries more flexibility.
- ❖ **One Nation, One Ration Card:** This initiative



allows beneficiaries to access their food entitlements from any Fair Price Shop across the country, improving portability and ensuring access for migrant workers.

- ❖ **Computerization of Fair Price Shops:** The introduction of Point of Sale (PoS) machines in FPSs has automated grain distribution and ensured accurate record-keeping. This has improved transparency and reduced errors.
- ❖ **Food Coupon System:** Some states have introduced food coupons that can be used to purchase a variety of nutritious food items, rather than just basic grains. This model has been tested to promote a more diversified and nutritious food intake for beneficiaries.

### Conclusion:

The Public Distribution System remains a cornerstone of India's food security strategy, helping to provide subsidized food to the country's most vulnerable populations. Despite challenges like leakage, inefficiencies in beneficiary identification, and inadequate infrastructure, the system has made significant strides through reforms like Aadhaar linking, DBT, and One Nation, One Ration Card. These reforms have improved the system's transparency and efficiency, although more work remains to be done. If these reforms continue to be implemented effectively, the PDS can play a key role in reducing hunger and malnutrition, ensuring food security for millions across India.

# Short Issues

## RBI Introduces Framework for Reclassification of FPI to FDI

### Why in News:

Recently, Reserve Bank of India (RBI) introduced an operational framework to streamline the process of converting Foreign Portfolio Investments (FPI) into Foreign Direct Investments (FDI) when FPIs exceed the prescribed limit of 10% in Indian companies.

- The RBI's framework aligns with recent SEBI updates, effective May 30, 2024, which also outline procedures for reclassifying FPI holdings that exceed the 10 percent threshold.

### Background: FPI Investment Limits in India

- FPIs are allowed to hold a maximum of 10% of a company's total paid-up equity capital under existing regulations.
- If an FPI exceeds this limit, it faces two options:
  - » **Divestment:** Sell the excess shares to comply with the 10% cap.
  - » **Reclassification:** Convert the excess stake into FDI, subject to approval from the Indian government and the invested company.

### Key Features of the RBI's New Framework

- **Reclassification Process:**
  - » If an FPI's holdings exceed 10%, the FPI can opt

to reclassify the excess shares as FDI.

- » Once reclassified, the entire investment will be treated as FDI, even if the stake later falls below 10%.
- **Timeline for Reclassification:**
  - » The reclassification must be completed within five trading days from the date the 10% cap is breached.
  - » This ensures timely compliance and clarity for FPIs.
- **Regulatory Approvals:**
  - » The reclassification process requires approvals from both the Indian government and the invested company.
  - » The reclassified investment must comply with existing FDI norms, including sectoral caps, entry routes, and other conditions.
- **Custodian Role:**
  - » FPIs must notify their custodian about the intent to reclassify their holdings.
  - » After the reclassification is approved, the custodian will facilitate the transfer of securities from the FPI's designated demat account to one specifically set up for FDI holdings.
- **Sectors with Restrictions:**
  - » Reclassification is not permitted in sectors where FDI is restricted (e.g., defense,

telecommunications, and sectors related to national security).

- » This ensures that the reclassification aligns with the country's FDI policy and prevents foreign ownership in sensitive sectors.

#### ▪ **Reporting and Compliance:**

- » FPIs must comply with the Foreign Exchange Management Act (FEMA) and submit required reports under the Foreign Exchange Management (Mode of Payment and Reporting of Non-Debt Instruments) Regulations, 2019.
- » Once the custodian confirms compliance, the reclassification process will be completed.

### Implications for Foreign Investors:

#### ▪ **Enhanced Flexibility:**

- » The framework provides greater flexibility for FPIs to retain investments beyond 10% by converting them into FDI.
- » This conversion offers a more permanent and strategic form of ownership, aligning with long-term investment goals.

#### ▪ **Transparency and Clarity:**

- » The new framework brings clarity to the reclassification process, ensuring that FPIs understand the regulatory requirements, the timeline, and the steps involved in the process.

#### ▪ **Long-Term Engagement:**

- » By facilitating reclassification into FDI, the framework encourages FPIs to view their Indian investments as long-term, strategic commitments rather than short-term positions.
- » This shift is expected to deepen foreign engagement and contribute to sustainable growth in Indian companies.

10-digit alphanumeric identifier issued by the Income Tax Department. It plays a crucial role in ensuring transparency and accountability in India's tax system and is used for various financial and business transactions, such as:

- » Filing income tax returns.
- » Opening bank accounts.
- » Conducting high-value transactions.

### Key Objectives of PAN 2.0 Project

- **Technology-Driven Transformation:** Leverages advanced technology to streamline taxpayer registration and automate PAN/TAN issuance and validation services.
- **Ease of Access & Speedy Service Delivery:**
  - » Integrates PAN with other digital government services for seamless interaction with tax and financial systems.
  - » Ensures faster processing of PAN issuance and verification.
- **Data Consistency:** Establishes a single source of truth to minimize errors and inconsistencies in taxpayer data.
- **Eco-Friendly Processes:** Shifts from paper-based applications to fully digital processes, reducing the carbon footprint.
- **Cost Optimization:** Incorporates automation and digital tools to lower operational costs and enhance taxpayer service efficiency.
- **Enhanced Security:** Strengthens infrastructure for secure, reliable, and efficient service delivery.

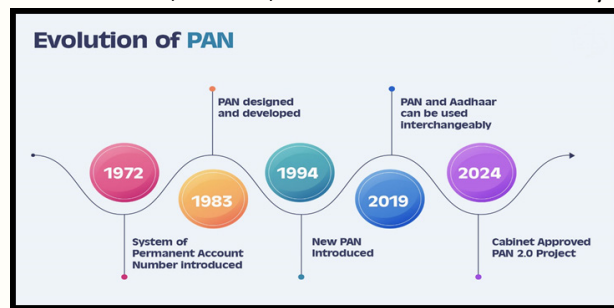
## PAN 2.0 Project: Transforming Taxpayer Services in India

### Why in News:

The Government of India recently launched the PAN 2.0 Project, an ambitious initiative aimed at overhauling the existing Permanent Account Number (PAN) system. With an investment of ₹1,435 crore, this project seeks to modernize taxpayer registration services, enhancing efficiency, accessibility, and security.

### What is PAN?

- The Permanent Account Number (PAN) is a unique



### Vision: Digital India and Common Business Identifier

- The PAN 2.0 Project aligns with the Digital India initiative, aiming to make India a digitally empowered society. By using PAN as a common business identifier, the project simplifies interactions across all digital government systems.

### Benefits of PAN 2.0

- **Taxpayer Convenience:** Simplified and faster

processes for managing and applying for PAN.

- **Integration:** PAN's alignment with digital systems enables responsive and personalized government services.
- **Government Efficiency:** Centralized data improves management of taxpayer information and public service delivery.
- **Financial Inclusion:** Encourages formal transactions, boosting sectors like banking and financial inclusion.
- **Digital Economy Growth:** Enhances data management, inclusivity, and smooth digital interactions.

The PAN 2.0 Project represents a significant step toward achieving Digital India's vision, fostering transparency, efficiency, and inclusivity in India's financial ecosystem.

## National Mission on Natural Farming (NMNF)

### Why in News:

The National Mission on Natural Farming (NMNF) initiative was recently launched as a Centrally Sponsored Scheme under the Ministry of Agriculture and Farmers' Welfare.

- With a budget of ₹2,481 crore (₹1,584 crore from the Centre and ₹897 crore from states), the mission targets 1 crore farmers by 2025-26, promoting chemical-free, sustainable farming practices that align with traditional agro-ecological knowledge.

### Objectives and Features:

- NMNF aims to reduce input costs, enhance soil health, promote biodiversity, and ensure nutritious, chemical-free food. It encourages natural farming methods like Jeevamrit and Beejamrit preparation using livestock and locally available resources.
- The mission will:
  - » Operate in 15,000 clusters across Gram Panchayats, covering 7.5 lakh hectares within two years.
  - » Establish 10,000 Bio-input Resource Centres (BRCs) to supply ready-to-use natural farming inputs.
  - » Develop 2,000 Model Demonstration Farms at Krishi Vigyan Kendras (KVKs), Agricultural Universities, and farmers' fields.
  - » Train 18.75 lakh farmers and deploy 30,000 Krishi Sakhis/Community Resource Persons

for awareness and guidance.

### National Mission on Natural Farming

Cabinet approves National Mission on Natural Farming (NMNF) as a standalone Centrally Sponsored Scheme under the Ministry of Agriculture & Farmers' Welfare



#### Salient features

- Mission to promote natural farming in mission mode across the country
- Total outlay of **Rs.2481 crore** (Government of India share – **Rs.1584 crore** and States' share – **Rs.897 crore**)
- To be implemented in **15,000 clusters** in Gram Panchayats, which are willing, & reach **1 crore farmers** and initiate Natural Farming in **7.5 lakh Ha** area
- Preference to be given to areas having prevalence of practising NF farmers, SRLM / PACS / FPOs, etc

### Implementation and Monitoring

- Real-time monitoring through geo-tagged portals will ensure transparency. Certification and branding of natural farming produce will simplify market access, and convergence with other government schemes will support local livestock, market linkages, and infrastructure development.
- Students will also be engaged through the RAWE program and dedicated courses in natural farming.

### Benefits:

- **Environmental Sustainability:** Improves soil fertility, water use efficiency, and biodiversity while reducing greenhouse gas emissions.
- **Economic Gains:** Reduces dependency on costly external inputs, lowering cultivation costs and boosting farmer incomes.
- **Health Advantages:** Provides chemical-free, nutritious food, minimizing health risks.
- **Climate Resilience:** Enhances farming adaptability to floods, droughts, and other climate risks.

The NMNF envisions a robust ecosystem that integrates traditional and sustainable practices, ensuring a "Healthy Soil, Healthy Food, and a Healthy Nation." This initiative marks a transformative shift in Indian agriculture, benefiting farmers, consumers, and the environment alike.

## Youth Unemployment in India

### Why in News:

Youth unemployment has been a longstanding challenge in India due to its large and dynamic youth population. However, recent data indicates that India's youth unemployment rate is lower than the global average, reflecting a positive trajectory in employment generation.

### Youth Unemployment: A Global Perspective

- Youth unemployment refers to the percentage of individuals aged 15-24 (or sometimes 15-29) who are actively seeking but unable to find employment. It is a key indicator of a nation's labor market health.
- According to the International Labour Organization (ILO), the global youth unemployment rate dropped from 15.6% in 2021 to 13.3% in 2023, highlighting the challenges nations face in providing adequate job opportunities.

States/UTS with **high unemployment** rate in July 2023-June 2024 period

STATE/UT	Male	Female	Person
Lakshadweep	26.2	79.7	36.2
Andaman & N Islands	24	49.5	33.6
Kerala	19.3	47.1	29.9
Nagaland	27.9	26.6	27.4
Manipur	19.9	27.5	22.9
Ladakh	11.4	38.3	22.2
Arunachal Pradesh	21.9	19.6	20.9
Goa	13.2	31	19.1
Punjab	16.7	24.5	18.8
Andhra Pradesh	16.4	19.7	17.5

States/UTS with **lowest youth unemployment** rate

STATE/UT	Male	Female	Person
Madhya Pradesh	2.8	2.1	2.6
Gujarat	3.3	2.7	3.1
Jharkhand	4.8	1.5	3.6
Delhi	4.6	4.8	4.6
Chhattisgarh	6.6	5.8	6.3
Dadra & Nagar Haveli	7.8	3.7	6.6
Tripura	6.8	6.7	6.8
Sikkim	8.3	6.8	7.7
West Bengal	8.5	10	9
Uttar Pradesh	9.3	12.3	9.8

- The Periodic Labour Force Survey (PLFS) reports that India's youth unemployment rate for those aged 15-29 was 10.2% in 2023-24, significantly lower than the global average of 13.3%.
- Key indicators from PLFS provide further insights:
  - Worker Population Ratio (WPR):** Increased from 31.4% in 2017-18 to 41.7% in 2023-24, indicating improved youth employment.
  - EPFO Payroll Data:** Reflects a surge in formal sector employment. Over 1.3 crore net subscribers joined the EPFO in 2023-24, and more than 7.03 crore net subscribers were added between 2017 and 2024.

### Government Initiatives Supporting Employment

- To address youth unemployment, the Government of India has implemented several programs aimed at job creation, skill development, and entrepreneurship:
  - Prime Minister's Employment Generation Programme (PMEGP):** Supports micro-enterprises and job creation in rural and urban areas.
  - Pradhan Mantri Mudra Yojana (PMMY):** Provides affordable credit to foster youth entrepreneurship.
  - Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY):** Focuses on vocational training for rural youth in high-demand sectors.
  - Rural Self Employment and Training Institutes (RSETIs):** Offers entrepreneurial training to prepare youth for self-employment.

### Conclusion:

India's efforts to reduce youth unemployment are yielding results, as evident from the declining unemployment rate and rising employment indicators. Continued investment in skill development, formalization of employment, and fostering entrepreneurship is critical to sustaining this positive trend, ensuring economic growth, and unlocking the potential of the country's young workforce.

**India's Commitment to Strengthening Intellectual Property**

### Youth Unemployment in India: Current Trends



## Why in News:

India has reaffirmed its commitment to fostering inclusive growth and strengthening its intellectual property (IP) ecosystem by signing the Design Law Treaty (DLT) under the World Intellectual Property Organization (WIPO).

- After nearly two decades of negotiations, member states of WIPO adopted this landmark treaty, aiming to harmonize global design protection and make it more accessible and efficient, particularly for startups, small and medium-sized enterprises (SMEs), and independent designers.



## Key Provisions of the Design Law Treaty (DLT):

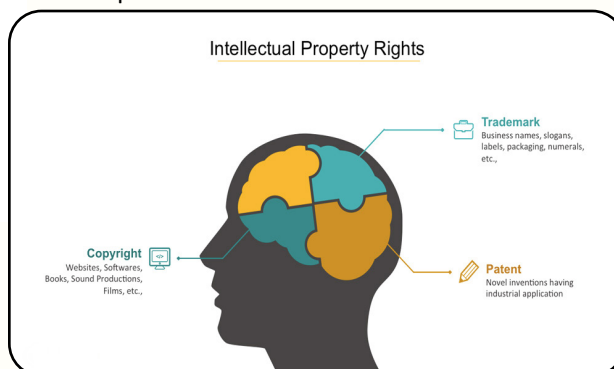
- The DLT introduces several provisions to simplify and enhance the industrial design registration process:
  - » **Multiple Designs in Single Application:** The treaty allows applicants to file multiple designs in a single application under certain conditions, improving efficiency.
  - » **Filing Date Requirements:** The treaty sets clear requirements for granting a filing date, emphasizing the importance of timely filing to avoid losing rights.
  - » **Publication Flexibility:** Applicants can keep designs unpublished for up to six months after securing a filing date, providing protection against premature exposure.
  - » **Grace Period for Disclosure:** A 12-month grace period is introduced, allowing applicants to disclose their design without compromising its registration validity.
  - » **E-Filing System:** The introduction of

electronic filing and the electronic exchange of priority documents streamline the application process, making it more accessible.

- These provisions aim to simplify design registration, making it more predictable, less complex, and affordable for applicants worldwide.

## Significance of the DLT:

- The DLT empowers startups, SMEs, and independent designers by offering global protection for their designs. By standardizing procedural requirements, the treaty reduces administrative burdens and promotes global creativity.
- India's policy emphasis on design protection aligns with its broader goals to strengthen its IP ecosystem, supporting innovation and market growth.
- Programs like Startup India and the Startups Intellectual Property Protection (SIPP) scheme complement the DLT by facilitating IP access for entrepreneurs.



## India's Progress in Design Registration:

- India has long recognized the importance of design in economic growth. In recent years, design registrations have surged, with domestic filings increasing by 120% in the last two years alone. Design applications grew by 25% in the past year, demonstrating the growing significance of design protection.

## WIPO and India's Contribution:

- WIPO, a specialized UN agency, promotes IP rights globally. India's signing of the DLT strengthens its IP ecosystem and supports global design protection, contributing to WIPO's goals.

## Conclusion:

The DLT is a crucial step in making industrial design protection more accessible and efficient. For India,

it strengthens the IP ecosystem, empowers startups and SMEs, and ensures that the country's creativity is globally protected, driving sustainable economic development and fostering innovation.

## Milk, Meat, and Egg Production in India in 2023-24

### Why in News:

India has seen significant growth in the production of milk, meat, and eggs during the 2023-24 fiscal year, as reported by the Department of Animal Husbandry and Dairying in the Basic Animal Husbandry Statistics - 2024.

### Key Highlights of the Report

- **Milk Production:**
  - » **Increase:** Milk production in India rose by 3.78% in 2023-24, reaching an estimated total of 239.30 million tonnes.
  - » **Historical Growth:** Over the last decade, India's milk production has grown at a compound annual growth rate (CAGR) of 5.62%. In 2014-15, the milk production was significantly lower at 146.3 million tonnes.
  - » **Global Ranking:** India continues to be the largest milk producer in the world, surpassing other milk-producing nations by a substantial margin.
  - » **State-wise Contribution:**
    - Uttar Pradesh leads the country with 16.21% of the total milk production, followed by Rajasthan (14.51%), Madhya Pradesh (8.91%), Gujarat (7.65%), and Maharashtra (6.71%).
    - States like West Bengal and Jharkhand recorded the highest annual growth rates, at 9.76% and 9.04%, respectively, for 2023-24 compared to 2022-23.
- **Egg Production:**
  - » **Increase:** India's egg production for 2023-24 is estimated to reach 142.77 billion eggs, reflecting a compound annual growth rate of 6.8% over the last decade.
  - » **Annual Growth:** Egg production grew by 3.18% over the previous year (138.38 billion eggs).
  - » **Global Ranking:** India holds the position of the second-largest egg producer in the world, contributing significantly to global egg supplies.
- » **State-wise Contribution:**
  - Andhra Pradesh leads the country with a share of 17.85% of the total egg production, followed by Tamil Nadu (15.64%), Telangana (12.88%), West Bengal (11.37%), and Karnataka (6.63%).
- **Meat Production:**
  - » **Increase:** Meat production in India for 2023-24 is estimated at 10.25 million tonnes, showing a compound annual growth of 4.85% over the past decade. The country's meat production has grown from 6.69 million tonnes in 2014-15.
  - » **Annual Growth:** There was a 4.95% increase in meat production during 2023-24 compared to the previous year (9.77 million tonnes).
  - » **Composition:**
    - Poultry is the dominant contributor, accounting for 48.96% of the total meat production.
    - Other sources of meat include buffalo meat (18.09%), cattle (2.60%), sheep (11.13%), goat (15.50%), and pig meat (3.72%).
  - » **State-wise Contribution:**
    - West Bengal is the largest meat producer, with 12.62% of the total, followed by Uttar Pradesh (12.29%), Maharashtra (11.28%), Telangana (10.85%), and Andhra Pradesh (10.41%).
    - The highest annual growth rate in meat production was recorded in Assam (17.93%), followed by Uttarakhand (15.63%) and Chhattisgarh (11.70%).
- **Wool Production:**
  - » **Growth:** India's wool production in 2023-24 is estimated at 33.69 million kg, showing a modest growth of 0.22% over the previous year. This compares with 36.76 million kg in 2019-20 and 33.61 million kg in the previous year.
  - » **State-wise Contribution:**
    - Rajasthan leads wool production, contributing 47.53% of the total, followed by Jammu & Kashmir (23.06%), Gujarat (6.18%), Maharashtra (4.75%), and Himachal Pradesh (4.22%).

## Digital Currencies

### Why in News:

Digital currencies are transforming the global financial landscape, with central banks and governments exploring new ways to implement electronic money. Two major initiatives have emerged in recent years: the Digital Euro by the European Central Bank (ECB) and the Digital Rupee by the Reserve Bank of India (RBI). These digital currencies represent an evolution in how money is used and transacted, offering benefits like faster transactions and reduced fees.

### What is Digital Currency?

- Digital currency refers to any form of money that is stored and transacted electronically. Unlike physical currencies such as coins or paper bills, digital currencies exist only in digital form and are used for online transactions. There are two primary types of digital currencies:
  - » **Cryptocurrency:** A decentralized digital currency that uses cryptographic techniques for security and operates on blockchain technology. Examples include Bitcoin, Ethereum, and Ripple (XRP). Cryptocurrencies are not controlled by any central authority like a government or central bank.
  - » **Central Bank Digital Currency (CBDC):** A digital currency issued and regulated by a country's central bank. It is considered the digital form of the country's official currency.

### The Digital Euro:

- The Digital Euro is being developed by the European Central Bank (ECB) as a Central Bank Digital Currency (CBDC). Launched in its preparation phase in 2023, the Digital Euro is designed to be a digital form of cash, issued by the ECB, and accessible to everyone in the euro area.

### India's CBDC:

- India's Digital Rupee, also called eRs or eINR, is another example of a CBDC, launched by the Reserve Bank of India (RBI). The RBI initiated a pilot project for the digital rupee in 2022.
- The digital rupee aims to improve transaction efficiency and offer an alternative to traditional cash-based systems. The Digital Rupee comes in two forms:
  - » **Wholesale CBDC (e₹-W):** Designed to streamline interbank payments and


settlements.

- » **Retail CBDC (e₹-R):** Aimed at the general public for retail transactions, similar to physical currency.


### Key Features:

- It operates on blockchain or distributed ledger technology.
- It represents the Indian rupee in a digital format and can be converted into physical cash via commercial banks.
- It is a legal tender, accepted by individuals, businesses, and government bodies.


### What is Cryptocurrency



Cryptocurrency is digital money created from code.




The cryptocurrency economy is monitored by a peer-to-peer internet protocol.




Cryptocurrency is an encrypted string of data or a hash, encoded to signify one unit of currency.


### Examples of Cryptocurrency



Bitcoin Market Cap  
\$127,331,758,431



Ethereum Market Cap  
\$24,383,863,767



XRP Market Cap  
\$18,187,690,567

### Significance of Digital Currencies:

- **Faster and Secure Transactions:** Digital currencies allow quicker and safer processing compared to traditional banking systems.
- **Financial Inclusion:** E-currencies can offer low-cost or free banking options for individuals without access to traditional banks.
- **Cost Efficiency:** By eliminating intermediaries like credit card companies, digital currencies could lower transaction fees.
- **Government Control:** Central banks can regulate digital currencies for specific purposes, such as subsidies, ensuring they are used efficiently and not misused.

### Conclusion:

The rise of digital currencies, like the Digital Euro and Digital Rupee, is a significant step toward a more efficient, secure, and inclusive financial system. By

providing a government-backed, electronic form of currency, these initiatives aim to enhance financial transactions while offering greater control and accessibility for the public. As these digital currencies evolve, they may reshape the future of money, making it more accessible and efficient for everyone.

## Domestic Systemically Important Banks (D-SIBs) and RBI Regulations

### Why in News:

The Reserve Bank of India (RBI) has confirmed that State Bank of India (SBI), HDFC Bank, and ICICI Bank will continue to be classified as Domestic Systemically Important Banks (D-SIBs) under the same bucketing structure as in 2023. This classification, based on data from March 31, 2024, emphasizes the critical role these banks play in the financial system.

### What Are D-SIBs?

- D-SIBs are banks perceived as Too Big To Fail (TBTF). Their failure could cause significant disruption to the banking system and overall economic activity.
- These banks are subject to additional regulatory requirements to mitigate risks and ensure their stability.

### Key Characteristics of D-SIBs:

- **Size:** Large-scale operations that are crucial to the economy.
- **Interconnectedness:** Strong links with other financial institutions.
- **Complexity:** Involvement in various financial services and activities.
- **Lack of Substitutability:** Difficulty in replacing their functions in the financial system.

### Importance of D-SIBs:

- The failure of a D-SIB would create a ripple effect throughout the financial system, leading to economic instability and disruption in essential services.
- These banks are considered to be under an implicit government guarantee, meaning they are expected to receive support during times of distress, which can create competitive distortions and encourage excessive risk-taking.

### Regulatory Measures for D-SIBs:

- D-SIBs must maintain additional capital to mitigate

risks.

- Additional capital requirements help ensure they can absorb losses during financial crises, preventing the need for government intervention.

### Bucketing of D-SIBs:

- D-SIBs are categorized into different buckets based on their systemic importance scores, which determine the capital surcharge they must maintain. The banks are classified as follows:
  - » SBI is placed in Bucket 4 and requires an additional 0.80% CET1 (Common Equity Tier 1) capital.
  - » HDFC Bank falls into Bucket 3 and must maintain 0.40% CET1 capital.
  - » ICICI Bank is in Bucket 1, with an additional 0.20% CET1 capital requirement.

### Capital Requirements for D-SIBs:

- The capital requirements for D-SIBs vary depending on their systemic importance:
  - » **SBI:** Additional 0.80% CET1 capital (effective from April 1, 2025).
  - » **HDFC Bank:** Additional 0.40% CET1 capital (effective from April 1, 2025).
  - » **ICICI Bank:** Additional 0.20% CET1 capital.
- These surcharges will apply starting April 1, 2025, though temporary surcharges for SBI and HDFC Bank will apply until March 31, 2025.

### Identifying D-SIBs:

- The RBI assesses systemic importance through a two-step process:
  - » **Selection of Banks:** Only larger banks (above 2% of GDP) are considered for the D-SIB classification.
  - » **Assessment:** A composite score based on various indicators like size, complexity, and interconnectedness is used to designate banks as D-SIBs.
- Banks with scores above a certain threshold are classified as D-SIBs and placed in different buckets based on their systemic importance.

### Global Systemically Important Banks (G-SIBs):

- In addition to D-SIBs, the Financial Stability Board (FSB) identifies Global Systemically Important Banks (G-SIBs). These banks are considered essential to the global economy, and their failure could have widespread impacts.
- Some notable G-SIBs include JP Morgan Chase, HSBC, and Bank of America.



## Conclusion:

D-SIBs are crucial for the stability of the financial system. The RBI's regulatory measures ensure that these large banks maintain sufficient capital to absorb shocks, preventing disruptions in banking services and contributing to economic stability. Through the classification and additional capital requirements, the RBI aims to reduce risks associated with these systemically important banks.

## Enhancing Opportunities through School-Based Skilling

### Why in News:

A recent World Bank study, "Jobs at Your Doorsteps," focuses on bridging the skill gap across sectors, particularly in Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Odisha, and Rajasthan. Released by Union Education Minister Dharmendra Pradhan and Union Labour Minister Mansukh Mandaviya, the study evaluates how skill education can be scaled to meet local economic demands, ensuring better job prospects for youth.

### Key Findings:

- The study identified significant opportunities in services and agriculture sectors for school-based skilling.
- **Services Sector:** The study highlighted several service sectors with growing demand for multi-skilled workers, including:
  - » **Retail:** Jobs require knowledge in customer service, sales, and inventory management.
  - » **IT:** The sector demands skills in software development, programming, and network management.
  - » **Banking:** Requires skills in finance, digital transactions, and customer service.
- The study emphasized the importance of employability skills like communication and teamwork across all sectors, making them critical to success in the workforce.
- **Agriculture Sector:** The agriculture sector offers substantial opportunities for school-based skilling, particularly in:
  - » **Horticulture and Gardening:** Tailored to rural areas, these skills can enhance farm productivity.
  - » **Dairy Farming:** Training in livestock health

and dairy management can improve rural incomes.

- » **Aquaculture and Fisheries:** With India's extensive coastline, these sectors provide significant employment prospects.
- Focusing on farm productivity, agronomy, and entrepreneurship is recommended to meet local agricultural needs.

### Challenges in Other Sectors:

While services and agriculture offer promising opportunities, the study also examined other sectors:

- **Mining:** Despite being a large industry, mining does not offer significant school-to-work skilling opportunities due to hazardous working conditions and a high demand for unskilled labor.
- **Manufacturing:** Both Micro, Small, and Medium Enterprises (MSMEs) and large industries require skilled workers. MSMEs prefer candidates with multi-skill exposure, while large industries demand formal certifications like those from ITIs. Collaboration with schools to design curricula is encouraged.



### Recommendations for Improving School-Based Skilling

- **Create Skill Hubs:** Regional centers offering diverse training programs tailored to local industries.
- **Revise Curriculum:** Broaden trade options and align them with local economic needs.
- **Focus on Employability Skills:** Include skills like communication, teamwork, and problem-solving alongside technical skills.
- **Hands-on Learning:** Emphasize practical, real-world experience through internships and apprenticeships.
- **Industry Partnerships:** Strengthen collaboration with industries to ensure training aligns with job market requirements.

- **Career Counseling:** Guide students and parents to change perceptions about skill-based education.

### Conclusion:

The "Jobs at Your Doorsteps" study provides a roadmap for expanding school-based skilling, particularly in services and agriculture, to address the country's skill gap. By updating curricula, focusing on employability skills, and strengthening industry partnerships, India can create more job opportunities and improve the employability of its youth.

## Merging Regional Rural Banks in India

### Why in News:

The Indian government has proposed merging Regional Rural Banks (RRBs) to reduce their number from 43 to 28. This move, aims to enhance the efficiency of RRBs and strengthen their capital base. The merger is expected to help these banks reduce costs, improve operations, and increase their capacity to provide financial services in rural areas.

### What are Regional Rural Banks (RRBs)?

- RRBs are government-backed financial institutions focused on providing affordable credit to rural populations, including small farmers, agricultural laborers, and small businesses.
- They play a key role in promoting financial inclusion in rural areas, which are often underserved by larger commercial banks.
- However, RRBs face challenges such as limited access to capital and outdated technology.

### Current Status of RRBs:

- As of March 31, 2024, RRBs held deposits of 6.6 trillion rupees (approx. USD 78.46 billion) and provided advances of 4.7 trillion rupees.
- Despite these numbers, RRBs struggle to compete with larger banks due to their smaller scale and outdated infrastructure.
- The merger will consolidate these institutions into more efficient entities, each representing one bank per state.

### Ownership Structure of RRBs:

- 50% ownership by the federal government.
- 35% ownership by sponsor or scheduled banks (large commercial banks).
- 15% ownership by state governments.

### Reasons for Merging RRBs:

- The government has been consolidating the RRB sector since 2004-05, reducing the number from 196 to 43 by 2020-21.
- The latest proposal aims to reduce dependency on government capital by creating larger, more efficient banks capable of self-sustaining operations.
- This will allow RRBs to better serve the financial needs of rural India.

### Proposed Mergers:

- The merger would involve one RRB per state, creating stronger, more viable institutions.
- Maharashtra and Andhra Pradesh are among the states where mergers are planned, with two banks merging in Maharashtra and four in Andhra Pradesh.

### Impact on the Banking Sector:

- The merger aligns with the Indian government's broader strategy to consolidate government-owned banks. These banks currently control over 50% of India's banking sector assets.
- The consolidation is expected to improve efficiency, technology integration, and resource management within RRBs, making them more competitive and capable of meeting the demands of rural areas.

### Conclusion:

The proposal to merge RRBs will create larger, more efficient institutions capable of supporting rural economic growth and enhancing financial inclusion. This step is part of India's broader effort to modernize and strengthen its banking sector for more sustainable development.

## Strengthening India-EFTA Trade Ties

### Why in News:

The Commerce Secretary of India recently visited Norway to discuss the potential early implementation of the Trade and Economic Partnership Agreement (TEPA) between India and the European Free Trade Association (EFTA), a four-nation European bloc. This agreement, signed in March, aims to enhance trade and economic cooperation between the two parties. However, the specific date for its implementation

remains undecided, as per an official statement.

- The EFTA comprises Iceland, Liechtenstein, Norway, and Switzerland, and the agreement aims to foster stronger economic ties between India and these countries.

### Key Objectives of the Visit

- **Promoting Trade and Investment:** Efforts to unlock market potential in EFTA countries for Indian goods and services.
- **Mobility for Indian Professionals:** Encouraging professional mobility to enhance workforce exchange.
- **TEPA Ratification:** Streamlining processes for the ratification and early implementation of the agreement.
- **Investment Targets:** Working towards a goal of USD 100 billion in investments, strengthening the bilateral economic relationship.

### Growth in India's Seafood Exports:

- Exports have doubled in both value (USD 7.3 billion) and volume (17.81 lakh metric tonnes).
- The European Union (EU) is now India's second-largest seafood market, with annual purchases worth USD 0.95 billion.
- India is the EU's second-largest shrimp supplier, with an 8% market share and a 12% share of EU squid imports.

existing frameworks for collaboration in various sectors, including seafood.

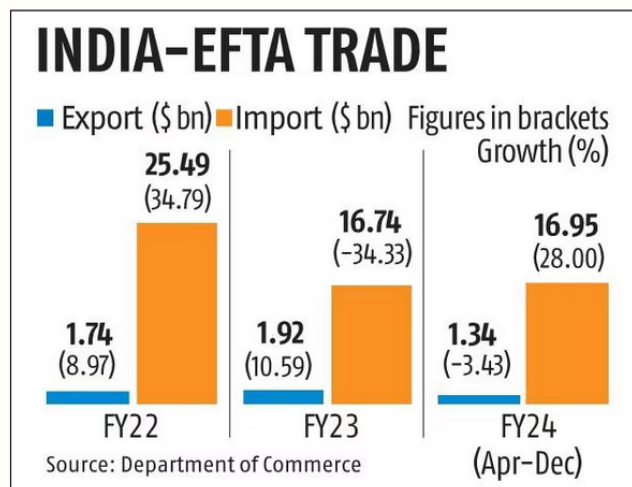
- **Overcoming Trade Challenges:** Enhancing bilateral cooperation to address global trade challenges and ensure the smooth flow of goods.

### Future Prospects of the India-EFTA Partnership

- **Market Access:** The TEPA is expected to provide expanded market access for Indian goods and services in EFTA countries.
- **Investment Opportunities:** The agreement's focus on a USD 100 billion investment will boost economic growth and infrastructure development in India.
- **Sectoral Growth:** Sectors such as seafood and manufacturing are expected to benefit from increased trade and cooperation under the agreement.

### Conclusion:

India's efforts to strengthen trade relations with the EFTA are progressing, with the TEPA acting as a cornerstone of this partnership. As key sectors like seafood experience growth, the future of the India-EFTA trade relationship looks promising, with expanded market access, investment, and professional mobility on the horizon. The implementation of the TEPA is set to further solidify India's role as a key player in global trade.



## The Decline in Out-of-Pocket Expenditure (OOPE) in Healthcare in India

### Why in News:

Recent data from the National Health Accounts (NHA) for 2021-22 highlights a significant reduction in Out-of-Pocket Expenditure (OOPE) in India. This positive trend is largely attributed to increased government spending on healthcare, improvements in public health infrastructure, and the expansion of social security schemes.

### What is Out-of-Pocket Expenditure (OOPE)?

- Out-of-Pocket Expenditure refers to the direct payments made by individuals for healthcare services. This includes costs like doctor visits, medicines, and hospital stays.
- High OOPE, especially in countries like India, can lead to severe financial strain, pushing families

### Strengthening Institutional Cooperation

Efforts to improve institutional cooperation between India and EFTA are also crucial. Both sides are focusing on:

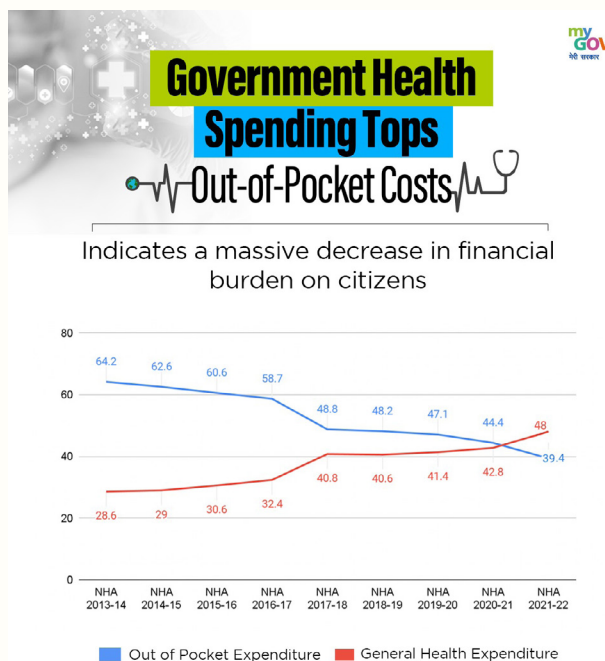
- **Re-energizing Mechanisms:** Strengthening

into debt and poverty. It also discourages timely medical visits, potentially worsening health outcomes.

### Reasons for the Decline in OOPE"

- **Increased Government Health Expenditure (GHE):**
  - » Between 2014-15 and 2021-22, government health expenditure as a percentage of GDP rose from 1.13% to 1.84%.
  - » This increase has enabled better public healthcare services, reducing the financial burden on individuals.
  - » The government's share of overall health spending also grew, from 3.94% to 6.12%.
- **Expansion of Social Security Expenditure (SSE):**
  - » Social Security Expenditure on healthcare, including health insurance programs, increased from 5.7% to 8.7% of total health expenditure between 2014-15 and 2021-22.
  - » This expansion provides financial protection against catastrophic health expenses, helping reduce OOPE.
- **Growth of Government-Funded Insurance Schemes:**
  - » Programs like Ayushman Bharat, along with state-level health insurance schemes, have made healthcare affordable for economically disadvantaged groups.
  - » These programs cover medical costs that would otherwise be borne by individuals, significantly reducing OOPE.
- **Focus on Public Health Infrastructure:**
  - » Investments in improving healthcare facilities, especially in rural and underserved areas, have made healthcare services more accessible and cost-effective.
  - » This has directly contributed to lower out-of-pocket spending by individuals.
- **Targeted Programs for Non-Communicable Diseases (NCDs):**
  - » The rise of NCDs, such as diabetes and hypertension, has led the government to introduce programs aimed at prevention and management.
  - » These initiatives help reduce the financial burden on patients who might otherwise need to pay privately for such care.

- **Improved Healthcare Accessibility:** Lower OOPE means more people, especially in rural areas, can afford medical care, promoting equity in healthcare access.
- **Better Health Outcomes:** Affordable healthcare encourages early treatment and preventive care, leading to better health outcomes and reduced overall healthcare costs.
- **Financial Stability for Households:** Reduced OOPE allows families to allocate their income to other essentials, strengthening their economic resilience.
- **Foundation for Universal Health Coverage:** The decline in OOPE is a crucial step toward universal health coverage in India, where access to healthcare is not determined by an individual's financial capacity.



### Conclusion:

The reduction in OOPE in India is a significant step toward making healthcare more inclusive and accessible for all. With continued government investments and the expansion of health insurance schemes, India is moving closer to achieving universal health coverage. This shift not only alleviates financial burdens on individuals but also contributes to a healthier and more economically stable population.

### Implications of Reduced OOPE:





# Miscellaneous



SCIENCE • TECHNOLOGY • ENGINEERING • MATHEMATICS

## Advancing STEM Education in India: Progress, Challenges, and the Way Forward

India is making impressive strides in Science, Technology, Engineering, and Mathematics (STEM) education, particularly regarding women's representation in these fields. Recent reports show that India has achieved 40% enrollment of women in STEM disciplines, a world record and a testament to the nation's commitment to gender parity and empowerment in science and technology. With this milestone, India demonstrates its dedication to promoting equitable access to education, vital for its ongoing economic and technological progress.

### Why STEM Education is Essential for India's Growth:

- ❖ STEM education provides essential skills, such as critical thinking, problem-solving, and innovation, all crucial for participation in modern industries. These skills form the foundation of India's economic competitiveness by preparing a workforce capable of addressing complex technological challenges. The development of a skilled STEM workforce is critical as India strives to expand its technology, manufacturing,

and research sectors, making it a global hub for science and innovation.

- ❖ **Economic Growth and Competitiveness:** STEM fields drive growth in tech-driven sectors such as information technology, biotechnology, and digital infrastructure. By equipping students with STEM knowledge, India can position itself as a global talent contributor in science and technology. This development is not only crucial for domestic economic growth but also for attracting foreign investment and enhancing India's role in the global technology landscape.
- ❖ **Equity and Access:** Promoting STEM education among women and marginalized communities is essential for creating a more inclusive workforce. India's significant strides in increasing women's participation in STEM highlight the potential for reducing gender gaps in education and employment. Empowering women in STEM also fosters innovation, as diverse perspectives can enhance problem-solving approaches and drive inclusive growth.
- ❖ **Curriculum Innovation:** STEM education

encourages hands-on, project-based learning over traditional rote memorization. This approach cultivates curiosity and independent thinking, preparing students to tackle real-world problems. However, achieving these educational goals requires well-trained educators who can facilitate STEM programs and support innovative teaching methods.

### India's Progress in Achieving SDG Goals:

- ❖ The SDG India Index, developed by NITI Aayog, shows an overall improvement in India's Sustainable Development Goals (SDG) score, which increased from 66 to 71 out of 100. The score for SDG 4 (Quality Education) rose from 66 to 75, indicating progress in improving educational access and quality. The educational advancements align with SDG 4.4, which emphasizes equipping youth and adults with technical skills relevant to employment, entrepreneurship, and decent jobs by 2030.
- ❖ Another critical goal, SDG 8, focuses on inclusive and sustainable economic growth, productive employment, and decent work. By investing in STEM education, India is working toward fulfilling this goal, providing its youth with skills that can open up new job opportunities and contribute to sustainable economic development.

### Challenges Hindering Effective STEM Education

Despite progress, India faces several challenges in delivering quality STEM education:

- ❖ **School-Related Barriers:** A large number of schools lack sufficient laboratory facilities and equipment essential for hands-on learning in STEM. Additionally, high student-to-teacher ratios prevent personalized attention, making it challenging for educators to engage students effectively.
- ❖ **Teacher-Related Barriers:** There is a shortage of qualified STEM teachers and limited opportunities for professional development. As a result, many educators lack effective teaching strategies, impacting the quality of STEM education. Without ongoing training, teachers struggle to keep up with rapidly evolving fields like artificial intelligence, quantum computing, and cybersecurity.
- ❖ **Student-Related Barriers:** Many students view STEM subjects as overly challenging, often due to rigid curricula that fail to relate course material to students' lives. Low motivation among students toward STEM fields can limit India's potential for cultivating a skilled workforce.
- ❖ **Curriculum and Instructional Barriers:** Current curricula are frequently rigid and do not support interdisciplinary approaches, limiting students' ability to see the connections between various STEM fields. A more integrated approach would encourage students to apply their knowledge in novel and innovative ways.
- ❖ **Technology-Related Barriers:** In many regions, particularly rural areas, there is limited access to technology, such as computers and the internet. This lack of resources hinders students' ability to engage with modern STEM learning tools and platforms, widening the education gap between urban and rural areas.

### Adapting Teaching Methodologies in STEM Fields:

To overcome these barriers, Indian educational institutions can adopt more flexible and student-centered teaching methodologies:

- ❖ **Project-Based Learning (PBL):** PBL encourages students to tackle projects that require critical thinking and teamwork, fostering a deeper understanding of STEM concepts. In PBL, students take ownership of their learning, from planning to execution, which strengthens their problem-solving skills and practical knowledge.
- ❖ **Problem-Based and Analytical Thinking (PBAT):** This method presents students with complex problems that require analysis and innovative thinking, enhancing their ability to approach challenges creatively. It also helps students develop a broader perspective on problem-solving, which is crucial in dynamic fields like STEM.
- ❖ **Encouraging Curiosity and Exploration:** Allowing students to explore their interests and ask questions fosters a more engaging learning environment. By experimenting and conducting investigations, students gain a hands-on understanding of STEM, motivating them to pursue these fields further.

- ❖ **Integration of Technology:** Utilizing technology in the classroom, such as simulations, coding platforms, and collaboration tools, helps bridge the gap between theoretical knowledge and real-world application. Access to these resources can significantly enhance engagement and provide students with skills relevant to modern industry demands.

### Role of Industry Collaboration in Strengthening STEM Education

Collaboration with industry provides students with opportunities to apply STEM concepts in practical contexts, making education more relevant and motivating. Industry partnerships offer several benefits:

- ❖ **Access to Real-World Knowledge:** Industry collaborations allow students to see how STEM principles apply in real-world settings, demonstrating the value of their education. Such exposure can inspire students to pursue STEM careers and understand the real-life implications of their studies.
- ❖ **Enhanced Resources and Expertise:** Through partnerships, schools can access cutting-edge technology, expertise, and resources from industry leaders, ensuring that students are learning with tools and knowledge aligned with current market needs.
- ❖ **Community and Economic Impact:** By working with local businesses, educational institutions can foster a stronger connection with the community, contributing to local economic

development. Such partnerships can also help build a skilled workforce, which is essential for sustained regional growth.

### Way Forward:

India's journey toward improving STEM education is promising but requires continued investment in educational infrastructure, teacher training, and curriculum reform. Key recommendations include:

- ❖ **Investment in Quality Teacher Training:** Ensuring educators are well-prepared to teach STEM subjects effectively.
- ❖ **Emphasizing Interdisciplinary Curriculum:** Fostering a curriculum that integrates multiple STEM disciplines to develop holistic problem-solving skills.
- ❖ **Promoting Industry Collaborations:** Partnering with industries to provide practical experience, access to advanced technology, and exposure to career pathways in STEM.
- ❖ **Encouraging Equity in Access to Resources:** Addressing rural-urban disparities in technology access, ensuring all students can benefit from modern STEM education tools.

India's progress in STEM, especially with women's representation, underscores a commitment to building an inclusive and skilled workforce. By addressing existing challenges and supporting continuous improvements, India is poised to strengthen its STEM education landscape, empowering the next generation to drive innovation and foster sustainable development.

# Short Issues

## Global TB Report 2024

### Why in News:

Recently, WHO released Global TB Report 2024, highlighting India's made remarkable strides in its fight against tuberculosis (TB), recording a 17.7% decline in incidence from 237 cases per lakh population in 2015 to 195 in 2023.

- This achievement is more than double the global decline of 8.3%. The success is largely attributed to the government's efforts in decentralizing

healthcare services through the establishment of over 1.7 lakh Ayushman Arogya Mandirs nationwide.

### Key Achievements:

- **Treatment Coverage:** India's treatment coverage has surged to 89% in 2023, a significant increase from 72% in 2015. This progress has been crucial in bridging the gap of missing cases.
- **Reduced Mortality Rate:** The country has experienced a 21.4% decline in TB-related deaths, with rates falling from 28 deaths per lakh

population to 22.

- **Increased Funding:** The tuberculosis budget has seen an unprecedented 5.3-fold increase in allocation, rising from Rs. 640 crores in 2015 to Rs. 3,400 crores in 2022-23. This financial boost has allowed for enhanced resources in TB management.

### Government Initiatives:

- **Nikshay Poshan Yojana (NPY):** The government has bolstered support under the NPY, raising the monthly allowance for TB patients from ₹500 to ₹1,000. This increase aims to provide better nutritional support to those undergoing treatment.
- **Energy Dense Nutritional Supplementation (EDNS):** The introduction of EDNS is benefiting approximately 12 lakh under-nourished TB patients, ensuring they receive the necessary nutritional support to aid recovery.
- **Artificial Intelligence-Enabled Diagnostic Tools:** To enhance diagnostic capabilities, the government is procuring over 800 AI-enabled portable chest X-ray machines. These will complement India's extensive TB laboratory network, which includes 7,767 rapid molecular testing facilities.

### About Tuberculosis:

- Tuberculosis (TB) is an infectious disease primarily affecting the lungs, caused by the bacillus *Mycobacterium tuberculosis*.
- **Prevention:** The Bacille Calmette-Guerin (BCG) vaccine provides immunity against TB.

### What is Drug-Resistant TB?

- Drug-resistant TB occurs when the *Mycobacterium tuberculosis* bacteria become resistant to one or more anti-TB drugs, complicating treatment efforts.

### Types of Drug-Resistant TB:

- **Multi-Drug-Resistant TB (MDR-TB):** Resistant to at least two first-line TB drugs: isoniazid and rifampicin.
- **Extensively Drug-Resistant TB (XDR-TB):** Resistant to any fluoroquinolone and at least one of three injectable second-line drugs, in addition to being MDR-TB.
- **Totally Drug-Resistant TB (TDR-TB):** Resistant to all available TB drugs.

### Conclusion:

The WHO's recognition of India's progress signifies a paradigm shift in TB care over the past eight years.

With continued government commitment, innovative healthcare strategies, and a focus on patient welfare, India is well-positioned to further reduce the burden of tuberculosis and move closer to its goal of TB elimination.

## First Asian Buddhist Summit (ABS) 2024

### Why in News:

The First Asian Buddhist Summit (ABS) was recently, in New Delhi, India.

- **Organizers:** Ministry of Culture, Government of India, and the International Buddhist Confederation (IBC).
- **Theme:** "Role of Buddha Dhamma in Strengthening Asia."
- **Key Attendee:** The Hon'ble President of India attended as the Chief Guest.

### Historical Context of Buddha Dhamma:

- **Origin:** Buddha Dhamma began in the 6th century BCE with Siddhartha Gautama, who attained enlightenment and shared his teachings.
- Mauryan Emperor Ashoka (268-232 BCE) spread Buddha Dhamma across Asia, exemplifying its societal impact through peace and harmony.
- **Evolution:** The split into Theravada, Mahayana, and Vajrayana led to Buddhism spreading north through Central Asia (Northern branch) and east to Southeast Asia (Southern branch).

### Key Themes of the Summit:

- **Buddhist Art, Architecture, and Heritage:** Focus on preserving and celebrating the cultural and spiritual significance of Buddhist landmarks like Sanchi Stupa and Ajanta Caves.
- **Buddha Cārikā (The Buddha's Wandering):** Discusses how the Buddha's travels across India helped disseminate his teachings.
- **Role of Buddhist Relics:** Relics are sacred symbols that inspire devotion, preserve cultural heritage, and contribute to local economies.
- **Significance in Scientific Research and Well-Being:** Exploring how Buddha Dhamma's teachings on mindfulness and compassion contribute to modern scientific and psychological well-being.
- **Buddhist Literature and Philosophy:** Continuing relevance of ancient Buddhist texts and their philosophical insights for the modern world.



Timeline of The Spread of Buddha Dhamma	
6th Century BCE	Siddhartha Gautama attains enlightenment.
Emperor Ashoka promotes Buddha Dhamma across his empire.	268-232 BCE
1st Century BCE	Emergence of Mahayana and Nikaya traditions within Buddhism.
Ashoka's dhammaduta establish communities in Sri Lanka, Myanmar, and beyond.	3rd Century BCE
1st Century BCE	Kasyapa Matanga and Dhamaratna spread Buddhism along the Silk Route to Central and East Asia.
Masters like Atisha Dipankara and Bodhidharma contribute to the dissemination of Buddha Dhamma in Tibet and East Asia.	11th Century

### Special Exhibition:

- **Exhibition Title:** "India as the Dhamma Setu (Bridge) Connecting Asia," celebrating India's role in the transmission of Buddhist teachings across the continent.

### India's Initiatives to Promote Buddhist Culture and Heritage:

- **Buddhist Tourism Circuit:** Promoting key Buddhist sites in India as part of the Swadesh Darshan Scheme for tourism development.
- **Global Buddhist Summit 2023:** Focused on disseminating universal values and addressing global challenges through Buddha Dhamma.
- **International Conference on Shared Buddhist Heritage (2022-2023):** Explored commonalities in Buddhist art and archaeological sites among SCO member states.
- **Symposium on Vipassana Meditation:** Discussed meditation's significance for well-being and global

peace.

- **Classical Status to Pali Language:** On October 4, 2024, Pali was granted classical status, highlighting its importance in preserving Buddha Dhamma.
- **International Abhidhamma Divas:** A major event in October 2024, addressing the relevance of Abhidhamma teachings.

### India's Role in Promoting Buddhism:

- India is actively fostering global interest in Buddha Dhamma, both as a spiritual practice and as a cultural asset.
- By hosting the ABS 2024, India reinforces its position as the birthplace of Buddhism and a leading advocate for spiritual dialogue and cross-cultural understanding.

## 'Chalo India Campaign'

### Why in News:

The Ministry of Tourism is launching the 'Chalo India' campaign to attract more foreign tourists to India. The initiative offers free e-visas to foreign nationals nominated by Overseas Citizens of India (OCI) cardholders. This campaign is part of India's efforts to promote tourism and build a strong brand identity for the country.

### Key Features:

- **Free E-Visas:** Each OCI cardholder can nominate up to five foreign nationals for free e-visas, with a total of one lakh e-visas being offered.
- **Special Portal for Registration:** OCI cardholders will register their nominations on a dedicated portal. After verification, they will receive a unique code, which can be used by the nominated friends to apply for the visa.
- **Targeted Markets:** The UK, which has one of the largest Indian diaspora populations, is a key focus of this initiative.

### Campaign's Objectives:

- **Boost Tourism:** The campaign seeks to increase foreign tourist arrivals, especially in the wake of the pandemic, which severely impacted tourism numbers.
- **Promote Brand India:** By leveraging the global Indian diaspora, the campaign aims to position India as a vibrant, diverse travel destination.
- **Increase Inbound Tourism from the UK:** The UK is India's third-largest source market for foreign

tourists, with nearly 1.9 million UK nationals visiting in recent years.

### Overview of the Overseas Citizen of India (OCI) Scheme:

- The Overseas Citizen of India (OCI) scheme, introduced in August 2005, provides a special registration status for Persons of Indian Origin (PIOs) who were citizens of India on January 26, 1950, or thereafter, or were eligible to become Indian citizens on that date. The scheme allows such individuals to retain their connection to India while holding a foreign passport.

### Eligibility Criteria:

- **Citizens of Pakistan or Bangladesh:** Individuals whose parents or grandparents have ever been citizens of these countries are not eligible.
- **Foreign Military Personnel:** Both serving and retired foreign military personnel are ineligible. However, the spouse of foreign origin of an Indian citizen or OCI holder, whose marriage has been registered and subsisted for at least two years, is eligible to apply.

### Advantages of Holding an OCI Card:

- **Life-long Visa:** A multiple-entry, multi-purpose visa for visiting India without the need for frequent renewals.
- **Exemption from Registration:** No requirement for registration with local police for any duration of stay in India.

### Limitations for OCI Holders:

- **No Voting Rights:** They cannot vote in Indian elections or be a member of the Indian Legislative Assembly, Legislative Council, or Parliament.
- **Ineligible for Constitutional Posts:** OCI holders cannot hold key constitutional positions such as the President, Vice President, or Judges of the Supreme Court or High Courts.
- **Employment Restrictions:** They cannot hold government employment in India.

## Seventh Session of the International Solar Alliance Annual Assembly

### Why in News:

The Seventh Session of the International Solar Alliance (ISA) Annual Assembly took place in New Delhi,

India, gathering representatives from 103 member countries and 17 signatory nations. The event brought together ministers from 29 countries, all committed to accelerating solar energy as a core driver of global sustainable development.

### Key Initiatives during the session:

During the assembly, several new initiatives were announced to enhance solar energy deployment, particularly in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

- **Solar Data Portal:** A real-time platform to provide key data on solar resources, project performance, and investment opportunities, helping stakeholders better engage with solar energy projects.
- **Global Solar Facility:** This initiative aims to unlock commercial capital for solar projects in underserved regions. A pilot project is already underway in the Democratic Republic of Congo, with significant financial commitments from India, ISA, Bloomberg, and the Children's Investment Fund Foundation.
- **Viability Gap Funding (VGF) Scheme:** A grant mechanism offering up to 35% of project costs to support solar projects in LDCs and SIDS, promoting a more inclusive solar energy transition.
- **Leadership Elections:** Elections were held for the President and Co-President of ISA for the 2024-2026 term, alongside the announcement of a new Director General, who will assume office in March 2025.

### About International Solar Alliance (ISA):

- The International Solar Alliance (ISA) is a pioneering intergovernmental organization founded in 2015 by India and France at the United Nations Climate Change Conference in Paris (COP21).

### ISA's Objectives and Goals:

The core mission of ISA is to mobilize solar energy solutions to address the global energy crisis and mitigate climate change. The organization follows its ambitious 'Towards 1000' strategy, which lays out four main goals to achieve by 2030:

- Mobilizing USD 1000 billion in investments to deploy solar energy technologies, focusing on making solar energy affordable and accessible.
- Delivering energy access to 1000 million people, particularly in the developing world, by providing clean and sustainable solar energy solutions.
- Installing 1000 GW of solar capacity, significantly

increasing the global share of solar power in energy generation.

- Mitigating global CO<sub>2</sub> emissions by 1000 million tonnes per year through the adoption of solar energy, thereby contributing to the reduction of global carbon footprints.

#### Headquarters:

- The headquarters of the ISA is located at the National Institute of Solar Energy (NISE) in Gurugram, India.

## World Cities Report 2024

### Why in News:

The United Nations Human Settlements Programme (UN-Habitat) has released the “World Cities Report 2024: Cities and Climate Action”, a crucial document assessing how urban areas are impacted by and contribute to climate change. The report underscores a troubling rise in global temperatures and highlights the growing funding gap hindering cities’ efforts to adapt.

### Key Findings from the Report:

- **Rising Temperatures and Growing Risks:**
  - » By 2040, more than 2 billion urban residents will face a 0.5°C increase in temperature.
  - » This increase will amplify the intensity of extreme weather events, including:
    - Heatwaves affecting public health in densely populated areas.
    - Erratic rainfall, leading to increased risks of flooding.
    - More frequent and severe cyclones and storms.
  - » Urban areas, particularly mega-cities, are increasingly vulnerable to climate-induced shocks, making climate resilience a top priority.
- **Cities as Both Victims and Culprits:**
  - » Urban areas are disproportionately exposed to climate change, while also being major contributors to the problem due to:
    - Greenhouse gas emissions from dense populations, high energy consumption, and economic activities.
  - » Mega-cities, which house millions of people and significant assets, are particularly vulnerable to climate shocks such as flooding, heatwaves, and storm surges.

- » The continued expansion of these cities increases their exposure to potentially catastrophic climate events.

- **The Climate Investment Gap:**

- » Cities require an estimated \$4.5 to \$5.4 trillion annually to develop and maintain climate-resilient infrastructure.
- » However, current climate finance for cities stands at only \$831 billion, a fraction of the amount needed.
- » The funding gap limits cities’ ability to invest in essential infrastructure like flood defenses, green spaces, and energy-efficient buildings, leaving them more vulnerable to climate risks.

### Climate Vulnerability and Inequality:

- The report highlights that the most vulnerable populations are those already facing structural inequalities:
  - » Informal settlements and slums, often situated in high-risk areas, lack adequate infrastructure to protect residents from extreme weather events.
  - » These communities are disproportionately affected by climate-related disasters and have fewer resources to adapt or recover.



### Declining Green Spaces and the Risk of “Green Gentrification”:

- From 1990 to 2020, the share of green space in urban areas decreased from 20% to 14%.
- The loss of green spaces worsens the urban heat island effect, where cities become hotter than surrounding rural areas due to dense infrastructure and reduced vegetation.
- The phenomenon of “green gentrification” occurs when climate interventions, such as creating parks or green spaces, inadvertently lead to the displacement of low-income residents as property values rise.

### Recommendations:

- Revenue raising based on enabling conditions e.g. through debt, creating PPPs, and establishing instruments to mobilize climate finance.
- Integrating climate action into urban planning and supporting bottom-up (Locally-led) climate adaptation efforts for effectively building resilience.
- Strengthening social protection programmes, adopting nature-based solutions that address climate shocks.

### About UN-Habitat

- UN-Habitat is the UN agency responsible for promoting socially and environmentally sustainable cities.
- Established in 1978 following the first UN Conference on Human Settlements (Habitat I).
- Its headquarters is located in Nairobi, Kenya.
- UN-Habitat works with governments, civil society, academic institutions, and the private sector to advance sustainable urban development.

## UNESCO Global Education Monitoring Report 2024

### Why in News:

Despite significant global efforts over decades to improve education access, the UNESCO Global Education Monitoring Report 2024 reveals that 251 million children and youth remain out of school worldwide.

### Key Findings from Report:

- **Global Progress in Education is Stagnating:**
  - » 110 million more children and youth have entered school since the adoption of the UN Sustainable Development Goal on Education in 2015.
  - » 40 million more young people are completing secondary school compared to 2015.
  - » Despite these improvements, the number of out-of-school children and youth has only decreased by 1%, meaning 251 million children and adolescents still lack access to education globally.
- **Stark Regional Disparities in Education Access:**
  - » In low-income countries, around 33% of school-aged children remain out of school, compared to just 3% in high-income countries.

- » Over half of the world's out-of-school children are located in the sub-Saharan Africa region, highlighting severe regional inequalities in education access.

- **Challenges in Education Financing:**

- » The report highlights education financing as a critical barrier to achieving universal access to education.
- » 40% of countries spend less than 15% of their total public expenditure and less than 4% of GDP on education, which falls short of international benchmarks.

- » The funding gap between low-income and high-income countries is vast. In 2022, low-income countries spent just \$55 per learner on education, compared to \$8,543 per learner in high-income countries.

- **The Growing Burden of Debt Servicing:**

- » The increasing burden of debt servicing is straining national education budgets.
- » In Africa, many countries spent as much on debt servicing in 2022 as they did on education.

- » Globally, the share of official development assistance (ODA) allocated to education has fallen, from 9.3% in 2019 to 7.6% in 2022, reflecting a widening funding gap.



### Innovative Financing Mechanisms to Address the Education Crisis:

- To overcome these challenges, UNESCO is calling for innovative financing mechanisms to help bridge the education funding gap. One such mechanism is the debt-for-education swap, which would allow heavily indebted countries to convert debt repayments into investments in education.
- **Debt-for-Education Swaps:**
  - » UNESCO advocates for the creation of a



multilateral platform where unsustainable national debts can be converted into sustainable education financing.

- » This approach would enable countries burdened by debt to redirect part of their debt relief toward funding education projects, ensuring access to education for future generations.
- » This initiative builds on existing frameworks such as the G20's Common Framework for Debt Restructuring and partnerships with multilateral funding organizations like the Global Partnership for Education (GPE).
- **G20 and UNESCO Synergies:**
  - » The 2024 Global Education Meeting in Fortaleza, Brazil, which took place from October 31 to November 1, 2024, brought together global leaders and education ministers to discuss the state of global education.
  - » A key outcome of the Global Education Meeting was the Fortaleza Declaration, endorsed by over 40 education ministers. The declaration outlined critical actions needed to ensure that education becomes a key driver of social justice and sustainable development.

## The 1st Global Ministerial Conference on Ending Violence Against Children

### Why in News:

The 1st Global Ministerial Conference on Ending Violence Against Children was held recently in Bogotá, Colombia, with a central aim to combat the widespread abuse children face globally. The conference focused on the alarming statistic that 1 billion children, or roughly half of all children, experience physical, emotional, or sexual abuse every year.

### Hosts the Conference:

- Governments of Colombia and Sweden hosted the event, with support from key international organizations:
  - » World Health Organization (WHO)
  - » UNICEF
  - » UN Special Representative of the Secretary-General on Ending Violence Against Children

### Key Objectives of the Conference:

- **Revitalize Country Commitments:** Reinforce national commitments to end violence against children through frameworks like INSPIRE and the Pathfinding initiative.
- **Launch a Child/Youth-Led Movement:** Launch a child/youth-led movement to raise awareness and advocate for policies to prevent child violence.
- **Adopt a Political Declaration:** Adoption of a globally negotiated Political Declaration, committing governments to actions that prevent and respond to violence against children.

## IIT-M Study Advocates Participatory Approach to AI Governance

### Why in News:

A study conducted by the Indian Institute of Technology-Madras (IIT-M) advocates for a participatory approach to the governance of Artificial Intelligence (AI) systems, stressing the importance of engaging a broad range of stakeholders throughout the development and implementation process. This inclusive model aims to foster transparency, enhance fairness, and build public trust in AI technologies.

### Key Points from the Study:

- **The Need for Stakeholder Involvement:**
  - » AI systems often exclude the perspectives of those most affected by their deployment.
  - » Engaging a wider range of stakeholders—such as affected communities (users of AI), civil society, and legal experts—can help make AI systems more responsible and human-centric.
- **Increased Transparency and Public Trust:**
  - » Stakeholder involvement increases transparency, which fosters public trust.
  - » By involving affected parties during the entire AI lifecycle (design, development, deployment, and oversight), AI systems are more likely to be accepted by society.
  - » Lack of stakeholder input can lead to unfair, biased, and opaque systems. Making AI systems more accountable can reduce risks such as algorithmic bias and privacy violations.

### Case Studies: Law Enforcement and Healthcare

- » **Law Enforcement:** FRT used by police forces

may introduce biases that disproportionately affect marginalized groups. Involving civil society groups, undertriads, and legal experts ensures the technology is tested for bias and does not infringe on privacy or discriminate against certain populations.

- » **Healthcare:** LLMs, used for medical advice or diagnosis, may generate inaccurate or biased information, especially if trained on flawed data.
- » Involving doctors, patients, legal teams, and AI developers can ensure AI systems are accurate, equitable, and transparent.
- » Feedback from healthcare professionals can ensure that AI tools are safe, and involvement from patient advocacy groups ensures that the system is not discriminatory.



Representational image

**IIT Madras and Vidhi Centre for Legal Policy study calls for diverse voices in AI governance, highlighting how ethical oversight enhances transparency and fairness across sectors.**

### Benefits of a Participatory Approach:

- **Improved Fairness and Equity:** Engaging stakeholders reduces biases and fosters a more inclusive design of AI systems.
- **Enhanced Accountability:** Stakeholder participation ensures developers are accountable for the societal implications of their systems.
- **Better Public Trust and Acceptance:** Transparent AI systems are more likely to gain public support and acceptance.
- **Reduced Risk of Harm:** Early engagement can identify and mitigate risks like legal challenges, public backlash, or harm to vulnerable groups.

## QS World University Rankings: Asia 2025

### Why in News:

India has demonstrated significant progress in the QS World University Rankings: Asia 2025, with Indian institutions making notable strides in academic performance, research output, and global competitiveness. Seven Indian universities now rank among the top 100 in Asia, including two in the top 50.

### Key Highlights of India's Performance

- **IIT Delhi:**
  - » Ranked 44th, achieving its best performance to date.
  - » Boasts a 99% employer reputation score and a strong academic reputation.
- **IIT Bombay:**
  - » Ranked 48th, recognized for its high academic reputation (96.6%) and employer reputation (99.5%).
  - » Maintains its position as one of India's top technical institutions.
- **IIT Madras:**
  - » Ranked 56th, known for being a powerhouse of engineering and research.
  - » Contributes significantly to India's global standing in higher education.
- **IIT Kharagpur:**
  - » Ranked 60th, renowned for engineering excellence.
  - » Plays a key role in strengthening India's global academic reputation.
- **IIT Kanpur:**
  - » Ranked 67th, further solidifying the IITs as leaders in Indian higher education.
- **Indian Institute of Science (IISc):**
  - » Ranked 62nd, focused on cutting-edge research in science and engineering.
  - » Plays a critical role in India's research-driven education system.
- **University of Delhi:**
  - » Ranked 81st, showing significant improvement from 94th to 81st place.
  - » Demonstrates growing academic and research strength.

### India's Academic Strengths:

- Indian institutions have shown remarkable performance in several key indicators of academic

excellence:

- **Papers per Faculty**
  - » Universities such as Anna University and IITs excel in research output, producing a high number of academic papers per faculty member, underscoring India's growing academic productivity.
- **Staff with PhD**
  - » Over 15 universities in India achieved scores above 99% in the Staff with PhD indicator, reflecting high faculty qualification and teaching standards across the country's top institutions.
- **International Research Network**
  - » The University of Delhi scored 96.4% in the International Research Network, highlighting its growing global research collaborations and increasing international visibility.

## India's Rising Academic Prowess

### QS World University Rankings: Asia 2025

7 Indian Institutes in Top-100	
Institution	Ranking
IIT* DELHI	44
IIT* BOMBAY	48
IIT* MADRAS	56
IIT* KHARAGPUR	60
IISc**	62
IIT* KANPUR	67
UNIVERSITY OF DELHI	81

- **Faculty-Student Ratio**
  - » Universities like North Eastern Hill University and University of Agricultural Sciences, Bangalore earned a perfect score of 100 in this indicator, which reflects the high quality of education and the personal attention students receive.

### About QS World University Rankings: Asia

- The QS World University Rankings: Asia 2025 evaluates 984 institutions across 25 countries in Asia. The rankings consider several critical metrics, such as academic reputation, research productivity, international diversity, and employer reputation.

## A Quarter of Diabetics Globally are Indians

### Why in News:

A recent study published in The Lancet on World Diabetes Day, November 14, 2024, has raised serious concerns about the global diabetes epidemic, highlighting that a quarter of the world's diabetic population resides in India.

### Key Findings from the Lancet Study

- **Global Diabetes Prevalence:**
  - » 828 million adults globally live with diabetes.
  - » India accounts for 212 million diabetic individuals—one-fourth of the global diabetes population.
- **Other countries with significant diabetes cases include:**
  - » China: 148 million
  - » US: 42 million
  - » Pakistan: 36 million
  - » Indonesia: 25 million
  - » Brazil: 22 million

### The study used two common diagnostic criteria:

- **Fasting Plasma Glucose (FPG):** 7.0 mmol/L (126 mg/dL)
- **HbA1c:** 6.5% or higher (average blood sugar over three months)
- However, experts suggest that using HbA1c and fasting glucose levels as benchmarks may overestimate diabetes prevalence in India.
- Without HbA1c inclusion, the actual diabetes prevalence in India for 2022 was:
  - » 14.4% in women (69 million)
  - » 12.2% in men (62 million)
  - » Total prevalence: 131 million people
- This is far lower than the 212 million figure presented by the Lancet study when HbA1c is used.

### The Treatment Gap:

- 59% of adults globally (around 445 million people) did not receive any medication for their diabetes in 2022, a significant rise from 1990 (129 million).
- In India, around 64 million men and 69 million women had untreated diabetes in 2022.
- This lack of treatment exacerbates the risk of complications such as:
  - » Amputations
  - » Heart disease

- » Kidney damage
- » Vision loss
- » Premature death

### What is Diabetes?

- Diabetes is a chronic medical condition that occurs when the body cannot properly regulate blood sugar (glucose) levels. Blood glucose is a vital source of energy for the body's cells, but its levels need to be carefully controlled. When this balance is disrupted, it can lead to either too high or too low levels of blood sugar, which can cause various health complications over time.
- There are two main types of diabetes: Type 1 diabetes and Type 2 diabetes, as well as a condition called gestational diabetes.
  - » Type 1 diabetes is an autoimmune condition where the body's immune system mistakenly attacks and destroys the insulin-producing cells in the pancreas, known as beta cells. Insulin is a hormone that helps glucose enter cells for energy.
  - » Type 2 diabetes occurs when the body becomes insulin resistant, meaning the cells do not respond effectively to insulin. Over time, the pancreas cannot produce enough insulin to maintain normal blood glucose levels. A combination of genetic factors, poor diet, physical inactivity, and obesity contributes to the development of Type 2 diabetes.

## Australia's Plan to Ban Social Media for Teenagers

### Why in News:

Australia has announced plans to introduce legislation aimed at restricting access to social media platforms (e.g., Instagram, TikTok, Facebook) for children under 16 years.

- The proposal has sparked significant debate regarding its efficacy, necessity, and the broader implications for adolescent health and privacy.
- The move is intended to address concerns over the negative impact of social media on the mental health of teenagers.

### The Proposed Legislation:

- The proposal is based on an independent study conducted by South Australia, led by former Chief Justice Robert French, which explored the

feasibility of restricting social media access for minors.

### Key Aspects of the Law:

- **Age Verification:** Social media platforms would be responsible for ensuring that users under 14 cannot access the platforms. Access for 14 and 15-year-olds would require parental consent.
- **Regulation and Penalties:** A regulatory body would be set up to monitor the enforcement of the law. Non-compliant companies could face fines, which would fund a Children's Online Safety Fund to address harms caused by social media exposure.

### The Challenges of Enforcing an Age-Based Ban:

- Currently, social media platforms like Instagram and Facebook rely on users to self-report their age, which many minors bypass by providing false information.
- Virtual Private Networks (VPNs) allow users to disguise their location and bypass age restrictions, making enforcement difficult.

### Proposed Solutions:

- The South Australian study suggests using more secure methods like government-issued IDs, credit cards, or facial recognition technology for age verification.
- However, these solutions raise significant privacy concerns, especially when minors' sensitive data is involved.

### Social Media and Its Impact on Adolescents

- **Negative Mental Health Effects:**
  - » Studies link excessive social media use to poor mental health outcomes, such as increased anxiety, depression, and substance abuse among teenagers.
  - » Prolonged screen time has been shown to affect sleep patterns, which is crucial for adolescent development.
  - » Pressure to maintain a curated online persona can lead to feelings of inadequacy, low self-esteem, and poor body image.
- **The Role of FOMO:**
  - » Teenagers often experience Fear of Missing Out (FOMO), which results in anxiety and an unhealthy desire to stay connected at all times.
  - » This constant online connection can make face-to-face communication difficult, leading



to feelings of isolation.

- **Potential Benefits of Social Media:**
  - » Social media also has a positive side, especially during the pandemic, when it helped teenagers stay connected and informed.
  - » It can provide a sense of community for marginalized groups and offer support for issues like mental health, gender identity, and social justice.

### Global Debate

- **Global Context:**
  - » Australia's move contributes to the ongoing global debate about protecting children online. Some countries (e.g., UK, US) have introduced stricter regulations or age verification systems.
- **Education vs. Ban:**
  - » While some support a ban, others argue that education and awareness about safe social media use may be more effective.
  - » Rather than restricting access, policymakers could focus on digital literacy, teaching adolescents to navigate online spaces responsibly.

## India Struggles with Limited Effectiveness of Gender Responsive Budgeting: UN Report

### Why in News:

India's efforts in Gender Responsive Budgeting (GRB) have been facing significant challenges, as highlighted by a recent United Nations report. The report pointed out key issues such as the exclusion of essential women-focused programs and the lack of sex-disaggregated data, which hinder the effectiveness of GRB in addressing gender disparities.

### What is Gender Budgeting?

- Gender budgeting is a tool to ensure public resources are allocated efficiently, considering the distinct needs of women and marginalized groups.
- India ratified the CEDAW in 1993 and introduced its first GBS in the 2005-2006 Union Budget.
- The Ministry of Women and Child Development (MWCD) acts as the central nodal agency, while the Ministry of Finance mandates the establishment of Gender Budget Cells across ministries.

### Key Findings from the UN Report:

- **Exclusion of Key Programs Benefiting Women:** Essential programs in healthcare, education, and social welfare often miss out, leading to insufficient focus on gender-specific needs.
- **Lack of Sex-Disaggregated Data:** India struggles to collect and use sex-disaggregated data, hindering effective tracking of resources and their impact on women.
- **Weak Monitoring and Implementation:** Limited accountability in tracking funds allocated for women's welfare calls for stronger oversight.
- **Inadequate Integration in Budget Prioritization:** Gender considerations need to be integrated from the beginning of the budgeting process.

### Recommendations for India:

- **Improved Data Collection:** Enhancing sex-disaggregated data will allow accurate tracking and better addressing of women's needs.
- **Stronger Monitoring:** Improved monitoring mechanisms at the sectoral level will ensure funds are utilized effectively.
- **Engagement of Subnational Governments:** Gender budgeting should be adopted at the state and local levels to reach marginalized women, especially in rural areas.
- **Capacity Building:** Training officials in gender budgeting will ensure effective implementation.
- **Public Participation:** Increased participation of women in the budgeting process will foster greater inclusivity.

### Highlights of the Gender Budget Statement (GBS) 2024-25

- **Rise in Pro-Women Allocations:** 6.8% of the total budget for 2024-25 is allocated to pro-women schemes, up from 5% historically.
- **New Reporting Structure – Part C:** Part C includes schemes with up to 30% allocation for women, such as PM Kisan. (Part A covers schemes with 100% allocation, like SAMARTHYA, making up nearly 40% of total GBS allocations. Part B includes schemes with 30%-99% allocation, such as PM AJAY.)

## Why In Broadcast

Every year, 26th November is celebrated as Constitution Day to honor the adoption of the Constitution and promote constitutional values among citizens. The Ministry of Social Justice and Empowerment declared this in November 2015 to foster awareness of constitutional rights and duties.

## Demand for Constituent Assembly

- **M. N. Roy (1934):** He was the first to demand a Constituent Assembly for framing the Constitution of India.
- **Indian National Congress (1935):** Officially demanded a Constituent Assembly in their 1935 session.
- **August Offer (1940):** British government accepted the demand in principle to form a Constituent Assembly.
- **Cripps Mission (1942):** The British offered full dominion status post-WWII, but Mahatma Gandhi rejected it, calling it a "postdated cheque."
- **Cabinet Mission (1946):** This mission laid out a framework for the formation of the Constituent Assembly.

## Composition of the Constituent Assembly

- **Total Members:** The Constituent Assembly had 389 members:
  - » 296 members from British India.
  - » 93 members from the Princely States.

## First Meeting of Constituent Assembly

- **Date:** The first meeting was held on 9th December 1946.
- **Temporary President:** Dr. Sachidananda Sinha was elected as the temporary President of the Assembly.
- **President:** Dr. Rajendra Prasad was later elected as the permanent President of the Constituent Assembly.

## Indian Independence Act (1947)

- The Indian Independence Act of 1947 led to the full sovereignty of the Constituent Assembly.
- **Dual Responsibilities:**
  - » The assembly was tasked with framing the Constitution, led by Dr. Rajendra Prasad (who later became India's first President).
  - » **Provincial Legislatures:** The assembly also oversaw the functioning of the Provincial Legislature, chaired by G. V. Mavalankar (who later became the first Speaker of the Lok Sabha).

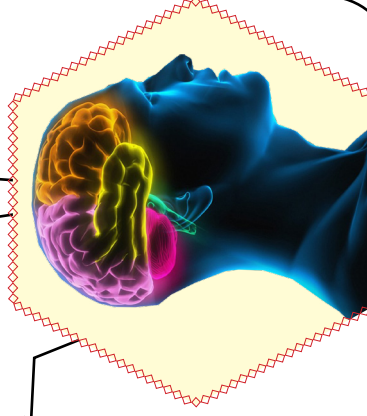
## Objective Resolution

- The Objective Resolution was presented on 13th December 1946 by Jawaharlal Nehru.
- The resolution outlined the fundamental philosophy of the Indian Constitution, including the values of sovereignty, justice, liberty, and equality.

## Constitution Day (26th November)

## Constituent Assembly's Committees

- **Union Power Committee:** Chaired by Jawaharlal Nehru.
- **Union Constitution Committee:** Chaired by Jawaharlal Nehru.
- **Provincial Constitution Committee:** Chaired by Sardar Patel.
- **Drafting Committee:** Chaired by Dr. B. R. Ambedkar.
- **Advisory Committee on Fundamental Rights, Minorities and Tribal Areas:** Sardar Patel.
- **Steering & Rules of Procedure Committee:** Chaired by Dr. Rajendra Prasad.



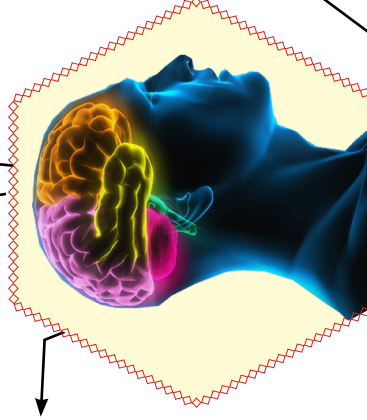
# BRAIN BOOSTERS

## Overview of India's Performance in WIPO 2024 Report

- **Recognition:** Ranked among the top 10 globally in patents, trademarks, and industrial designs.
- **Highlight:** Consistent double-digit growth in IP filings for the 5th consecutive year.
- **Significance:** India as an emerging global innovation hub.

## Key Achievements

- **Patent Growth:**
  - **Applications Filed:** 64,480 (2023).
  - **Growth:** +15.7%, highest in emerging markets.
  - **Resident Filings:** 55.2%, reflecting domestic innovation.
  - **Patent Grants:** +149.4% (2023 vs 2022).
  - **Patent-to-GDP Ratio:** Increased from 144 (2013) to 381 (2023), showing innovation-driven economic growth.
- **Industrial Designs:**
  - **Growth:** +36.4% in filings (2023).
  - **Sector Leaders:** Textiles, Tools & Machines, Health & Cosmetics.
  - **Significance:** Shift to value-added manufacturing and focus on design-driven industries.
- **Trademark Growth:**
  - **Global Rank:** 4th in filings.
  - **Resident Share:** 90%, highlighting brand protection awareness.
  - **Active Trademarks:** 3.2 million; 2nd globally.
  - **Sector Leaders:** Health (21.9%), Agriculture (15.3%), Clothing (12.8%).



## India in Global Innovation (WIPO 2024 Report)

### Atal Innovation Mission (AIM):

- 10,000 Atal Tinkering Labs in schools.
- 3,500 Startups Incubated, generating 32,000+ jobs.
- **Digital Modernization:** Digitized IP offices, cutting down processing delays.

## Detailed Metrics

### Patents:

- India among top contributors to global filings (3.55 million worldwide).
- **Key Sectors:** Pharmaceuticals, IT, Renewable Energy, Agriculture.

### Trademarks:

- Growth aligned with increasing domestic and global business competitiveness.

- **Purpose:** Enhance brand equity, consumer trust, and protection.

### Industrial Designs:

- Reflects a strong focus on aesthetics, functionality, and user experience.
- Applications show India's global competitiveness in product design.

## Government-Led Initiatives

### National IPR Policy (2016):

- **Objectives:** IP awareness, ecosystem strengthening, and IP commercialization.
- **Key Actions:**
  - » **Faster Processing:** Streamlined patent office workflows.
  - » **Awareness Programs:** National IP Awareness Mission (NIPAM).
  - » **Support for Innovation:** Technology Innovation Support Centres (TISC).

### SPRIHA Scheme:

- IPR education integrated into universities.
- **IPR Chairs:** Research hubs for innovation and policy studies.

### Startup India:

- 1,49,414 startups recognized (2024).
- **Key sectors:** Technology, Agriculture, Healthcare.

## Formation Day Observances (November 1)

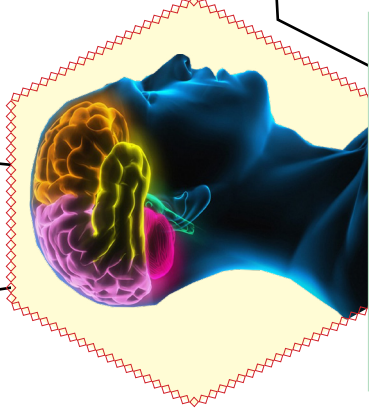
- **States Celebrating Formation Day:**
- **Andhra Pradesh:** Formed on linguistic lines; State Reorganisation Act (1956).
- **Karnataka:** Merged Kannada-speaking regions; Rajyotsava Day (1956).
- **Kerala:** Merged Malabar, Cochin, and Travancore; celebrated for literacy and cultural programs (1956).
- **Madhya Pradesh:** Reorganised as central India's heartland; Foundation Day observed with parades and awards (1956).
- **Chhattisgarh:** Created as the 26th state; known as the "Rice Bowl of India" (2000).
- **Haryana:** Carved out of Punjab for Hindi-speaking population; highlights agriculture and sports (1966).
- **Punjab:** Restructured for Punjabi speakers; rich culture and historical identity emphasized (1966).

## Union Territories Celebrating Formation Day:

- Andaman & Nicobar Islands, Chandigarh, Delhi, Lakshadweep, Puducherry.

## Key Constitutional Provisions Related to Formation of States

- **Article 2:**
- **Empowers Parliament:** To admit new states or establish them under terms it deems fit.
- **Example:** Sikkim became a part of India through Article 2.
- **Article 3:**
- **Deals with:** Internal reorganization of states.



## Formation of Indian States and Union Territories

### Historical Context of States' Formation

#### States Reorganisation Act (1956):

- **Basis:** Linguistic and administrative reorganization.
- Resulted in the formation of states like Andhra Pradesh, Kerala, Karnataka, and Madhya Pradesh.

#### Later Developments:

- **1960s:** Haryana and Punjab carved on linguistic basis.
- **2000s:** Creation of new states like Jharkhand, Chhattisgarh, and Telangana.

### Examples of State Formation

- **Linguistic States:** Andhra Pradesh (first linguistic state), Kerala, Haryana.
- **New States by Division:** Telangana (from Andhra Pradesh), Chhattisgarh (from Madhya Pradesh).
- **Renaming and Boundary Adjustments:**
  - » Madras -----Tamil Nadu (1967).
  - » Mysore -----Karnataka.

### Parliamentary Powers:

- Create a new state (e.g., Telangana from Andhra Pradesh).
- Alter area, boundaries, or names of existing states (e.g., Karnataka's renaming).

### Conditions:

- Presidential recommendation required to introduce a bill in Parliament.
- President refers the proposal to the state legislature for its opinion.
- Parliament is not bound by the state legislature's views.
- **Union Territories:** No state legislature reference needed.



# BRAIN BOOSTERS

## Overview

- **Achievement:** India was declared polio-free in 2014, a significant global health milestone.
- **Key Partners:** Government of India, UNICEF, WHO, Bill & Melinda Gates Foundation, Rotary International, CDC.

## Timeline of Key Milestones

- **1978 - Expanded Programme on Immunization (EPI)**
  - Initial effort to provide vaccines to children.
  - Renamed to Universal Immunization Programme (UIP) in 1985, broadening outreach.
- **1995 - Pulse Polio Programme**
  - Large-scale vaccination campaign using Oral Polio Vaccine (OPV).
  - Slogan: "Do Boond Zindagi Ki" (Two drops of life).
  - Reached over 1 million children in the first campaign.

## Routine Immunization Strengthening

- UIP expanded to immunize against 12 diseases, including polio.
- Cold Chain Management: Improved vaccine storage/distribution with NCCTE and eVIN (Electronic Vaccine Intelligence Network).

## 2015 - Introduction of Inactivated Polio Vaccine (IPV)

- IPV introduced alongside OPV to offer protection against Type 2 Poliovirus.
- Part of Global Polio Endgame Strategy.

## Polio Certification Process

- 2011: Last wild poliovirus case in Howrah, West Bengal.
- WHO Certification Requirements:
  - » No wild poliovirus for three years.
  - » Robust surveillance and virus stock destruction.
- March 27, 2014: India declared polio-free by WHO.

## Post-Certification Measures

- **Annual Polio Campaigns:** National Immunization Days (NID) and Sub-National Immunization Days (SNID) maintain immunity.
- **Surveillance:** Ongoing AFP and environmental monitoring.
- **Border Vaccination:** Prevents re-importation from endemic regions.

## New Vaccines & Initiatives

- **New Vaccines:** Rotavirus, Pneumococcal Conjugate Vaccine (PCV), Measles-Rubella (MR) vaccines.
- **Mission Indradhanush (2014):** Aims to increase immunization coverage to 90%, with focus on hard-to-reach areas.

## Key Terms

- **UIP (Universal Immunization Programme):** National initiative providing vaccines to children for multiple diseases, including polio.
- **OPV (Oral Polio Vaccine):** Vaccine used in pulse polio campaigns to prevent polio.
- **IPV (Inactivated Polio Vaccine):** Injectable vaccine providing protection against polio, especially Type 2 strain.

## India's Polio Eradication

### Surveillance Systems

- **AFP Surveillance:** Monitors unexplained paralysis in children under 15.
- **Environmental Surveillance:** Monitoring sewage for poliovirus strains.
- Ensured quick detection and response to outbreaks.

## Overview

- **Type:** Central Sector Scheme under DAY-NRLM (Deendayal Antyodaya Yojana–National Rural Livelihood Mission)
- **Objective:** Empower women SHGs (Self-Help Groups) by providing drones for rental agricultural services
- **Period:** 2024-2026
- **Ministry:** Ministry of Agriculture & Farmers Welfare

## Key Features

- **Financial Assistance:** 80% Subsidy for SHGs to buy drones (up to Rs. 8 lakh)
- **Additional Financing:** Agriculture Infra Financing Facility (AIF) provides 3% interest subvention on loans for SHGs.

## Drone Package:

- Includes spray assemblies, batteries, cameras, chargers, and measurement tools.
- Extra batteries and propellers to cover up to 20 acres per day.

## Training Program:

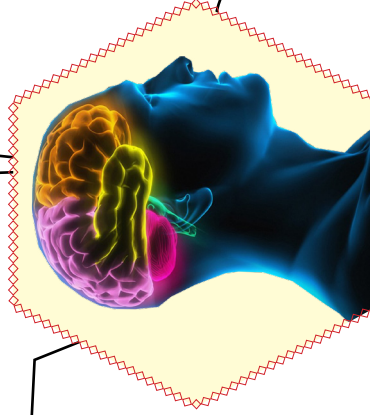
- **15-Day Training:** SHG members designated as drone pilots will undergo training in agricultural tasks like nutrient spraying and pesticide application.

## Implementation:

- Lead Fertilizer Companies (LFCs) to execute at the state level.
- **Central Empowered Committee:** Oversight by a central body of government officials.
- **IT-Based Drone Portal:** MIS System for end-to-end tracking, fund disbursement, and real-time monitoring of drone usage.

## Significance

- **Empowers Women:** Provides income-generating opportunities for SHGs via drone services in agriculture.
- **Modernizes Agriculture:** Drones improve efficiency in fertilizer/pesticide application, boosting productivity.
- **Reduces Costs:** Saves time and labor for farmers, making advanced farming affordable.
- **Rural Skill Development:** Trains SHG members in drone operation, promoting digital literacy.
- **Supports Government Initiatives:** Aligns with DAY-NRLM and Kisan Drones for rural empowerment and sustainable agriculture.
- **Enhances Technological Access:** Makes cutting-edge drone technology accessible to rural areas.



## Namo Drone Didi Scheme

### Way Ahead

- **Enhanced Financial Support:** Consider grants/subsidies for the 20% remaining cost to reduce financial burden on SHGs.
- **Extended Training Programs:** Offer longer, more comprehensive training with refresher courses to ensure SHGs can handle technical issues.
- **Environmental Safeguards:** Implement guidelines to prevent ecological damage, particularly near sensitive areas.

## Challenges

- **Financial Burden on SHGs:** SHGs must cover 20% of the drone cost, risking financial strain if benefits fall short.
- **Limited Training:** 15-day training may be inadequate for handling technical complexities and troubleshooting.
- **Bureaucratic Delays:** Reliance on LFCs for coordination could slow down implementation due to bureaucratic inefficiencies.
- **Environmental & Health Risks:** Concerns about pesticide spraying affecting biodiversity, especially in ecologically sensitive areas like Nilgiris, Tamil Nadu.

## Overview

- **Launch:** September 17, 2023, Vishwakarma Jayanti
- **Initiative by:** PM Narendra Modi
- **Purpose:** Empower artisans and craftspeople in traditional crafts; preserve cultural heritage.
- **Approval:** Cabinet Committee on Economic Affairs, August 16, 2023.

## Objectives

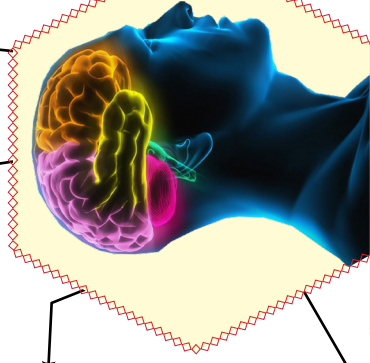
- **Skill Enhancement:** Upgrade traditional craftsmanship.
- **Market Integration:** Connect artisans to domestic and global value chains.
- **Cultural Preservation:** Support continuity of guru-shishya mentorship traditions.

## Target Beneficiaries

- **Artisans:** Involved in 25 traditional trades (e.g., blacksmithing, pottery, carpentry).
- **Unorganised Sector Workforce:** Promoting their integration into formal systems.

## Eligibility

- **Industrial Units:** MSME-focused.
- **Individuals:** From school dropouts to M.Tech holders.



## PM Vishwakarma Yojana

## Scheme Features

- **Financial Outlay:** 13,000 crore (2023-24 to 2027-28).
- **Registration:**
  - » Free via Common Services Centres.
  - » Biometric-based PM Vishwakarma Portal.
- **Recognition:** PM Vishwakarma Certificate & ID Card.
- **Credit Support:**
  - » Rs. 1 lakh (1st tranche), 2 lakh (2nd tranche).
  - » 5% concessional interest rate.
  - » 8% interest subvention provided to banks.
- **Toolkit Incentive:** 15,000 via e-vouchers for modern tools.
- **Skill Training:** Basic & advanced training programs.
- **Digital Incentives:** Encourages digital transactions and marketing support.

## Achievements (as of Nov 4, 2024)

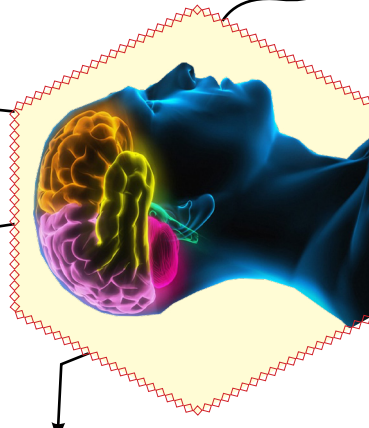
- **Applications Received:** 25.8 million.
- **Successful Registrations:** 2.37 million.
- **Beneficiaries:** 1 million artisans availed toolkit incentives.

## Key Benefits

- **Tool Access:** Boosts MSME efficiency.
- **Skilled Workforce:** Aligns training with industry standards.
- **Product Development:** Supports innovation and competitiveness.
- **Consultancy Services:** Tailored solutions for industry needs.

## Broader Impact

- **Poverty Alleviation:** Supports rural and urban artisans.
- **Self-Reliance:** Integrates artisans into development pathways.
- **Cultural & Economic Revival:** Sustains India's diverse craftsmanship traditions.



## PM-Vidyalaxmi Scheme

**Overview**

- **Type:** Central Sector Scheme.
- **Objective:**
  - » Financial inclusion in higher education by providing collateral-free loans and interest subvention.
  - » Promotes equitable access to quality education for meritorious students.
- **Duration:** 2024-25 to 2030-31.

**Key Features**

- **Eligibility Criteria:** Admission to Quality Higher Education Institutions (QHEIs) as ranked by NIRF.
- Open to both government and private institutions.
- **Loan Accessibility:**
  - Collateral-Free Loans: No guarantor required.
  - Full coverage of tuition fees and course-related expenses.
- **Digital System:** Entirely online, transparent, and student-friendly.
- Annual updates in eligible institution lists based on the latest NIRF rankings.

**Institutions Covered**

- **Top 100 in NIRF Rankings:** All institutions in overall, category-specific, and domain-specific rankings.
- **State Government HEIs (Rank 101-200 in NIRF):** Focused on inclusivity for regional institutions.
- **Central Government Institutions:** Automatically included to ensure nationwide reach.

**Broader Impact**

**Socioeconomic Impact:**

- Reduces financial barriers for meritorious students.
- Promotes higher education accessibility, especially for middle-income families.

**Strengthening Higher Education:**

- Encourages competition among institutions to rank higher in NIRF.

**Loan Provisions**

**Loan Amount Up to ₹7.5 Lakhs:**

- Government provides a guarantee for 75% of the outstanding default.
- Encourages banks to approve loans with minimal risk.

**Loan Amount Up to ₹10 Lakhs:**

- 3% interest subvention provided during the moratorium period.

**Eligibility for Interest Subvention:**

- » Annual family income of up to 8 Lakhs.
- » Not covered by other government scholarships or loan schemes.
- » Priority for students pursuing technical/professional courses in government institutions.

**Target Group for Subvention:**

- Support for 1 lakh students annually.

**Funding and Financial Outlay**

- **Total Outlay:** 3,600 Crore.
- **Funding Period:** Spanning 7 years from 2024-25 to 2030-31.
- **Government's Role:** Ensures sustained funding to support banks and incentivize education loans.

**Implementation Mechanism**

**Unified Digital Portal:**

- Named PM-Vidyalaxmi Portal.
- Streamlines applications for education loans and interest subvention.
- Accessible to all students.

**Payment Methodology:**

- Interest subvention paid via E-vouchers and Central Bank Digital Currency (CBDC) wallets.



# BRAIN BOOSTERS

## Understanding Tuberculosis (TB)

A communicable disease caused by Mycobacterium tuberculosis, primarily affecting the lungs (pulmonary TB) but can affect other organs (extrapulmonary TB).

### Transmission:

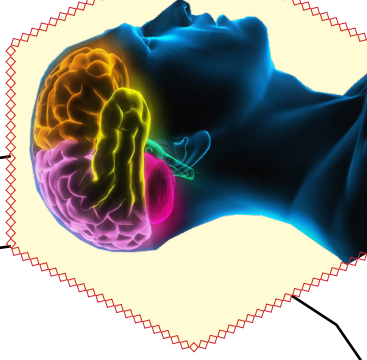
- Spread through airborne droplets when an infected person coughs, sneezes, or talks.

### Types:

- Latent TB:** Infection without symptoms; bacteria remain inactive.
- Active TB:** Bacteria multiply, causing symptoms and making the person contagious.
- Drug-Resistant TB (DR-TB):** Resistant to first-line TB drugs.

### Symptoms:

- Persistent cough (2+ weeks)
- Fever, night sweats, weight loss
- Chest pain, fatigue, and loss of appetite



## TB Elimination Goals and Indicators

### UN-SDG Target 3.3:

- End epidemics of TB, AIDS, malaria, and neglected tropical diseases by 2030.

### India's Targets by 2025:

- 80% reduction in TB incidence rate (2015 baseline).
- 90% reduction in TB mortality rate.
- Zero TB-affected households facing catastrophic expenses.

## India's TB Elimination Strategy

### National Tuberculosis Elimination Programme (NTEP)

- Formerly Revised National TB Control Programme (RNTCP).
- Key Framework:** National Strategic Plan (NSP) 2017–2025.

## Towards a TB-Free India

### Global and Indian TB Burden

- Global:**
  - TB is among the top 10 causes of death worldwide.
  - Over 10 million cases annually, with a high burden in low- and middle-income countries.
- India:**
  - Highest TB burden globally (~27% of global cases).
  - In 2023, TB incidence declined by 17.7% (2015–2023), surpassing the global decline of 8.3%.
  - India's goal: TB elimination by 2025, five years ahead of the SDG 2030 deadline.

### Key Pillars

#### Preventive Care:

- Tuberculosis Preventive Therapy (TPT) for high-risk populations.
- Adult BCG vaccination studies under development.

#### Diagnosis:

- Expansion of molecular testing (e.g., GeneXpert machines).
- 68.3 lakh nucleic acid amplification tests conducted in 2023.

#### Treatment:

- Shorter oral drug regimens for DR-TB.
- Addressing co-morbidities (malnutrition, HIV, diabetes).

#### Patient Support:

- Ni-kshay Poshan Yojana:** Rs. 2,781 crores

disbursed for nutrition to 1 crore TB patients.

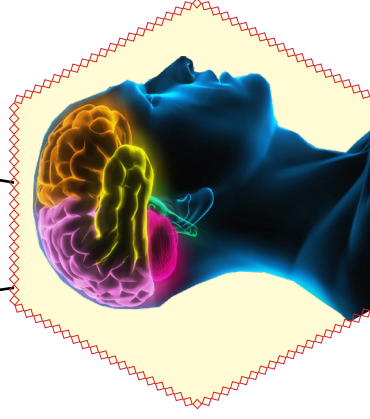
- Involvement of Ni-kshay Mitras (volunteers) to support patients.

### Community Engagement:

- PM TB Mukh Bharat Abhiyaan (PMTBMA):** A community-led initiative.

## Overview of PLI Scheme

- Introduced in 2020, the PLI Scheme aims to boost India's manufacturing sector by providing financial incentives to industries for achieving higher production and sales.
- Goal: To transform India into a global manufacturing hub, promoting self-reliance (Atmanirbhar Bharat) and reducing dependency on imports.
- Sectors Covered: The scheme covers 14 critical sectors aligned with India's goal of enhancing domestic manufacturing and increasing exports. Focus on electronics, textiles, pharmaceuticals, and automobiles among others.
- Performance-based Incentives: Offers incentives based on measurable outcomes like higher production, incremental sales, and technological advancement.



## Production Linked Incentive (PLI) Scheme

### Budget Outlay

- Total Budget:** Rs. 1.97 lakh crore (~US\$24 billion) allocated for 14 sectors.
- Focus Areas:**
  - » Mobile Manufacturing
  - » Auto Components
  - » Renewable Energy
  - » Pharmaceuticals
  - » Food Processing
- Objective:** Encourage technological innovation, reduce imports, and create jobs.

### Key Terms

- PLI (Production Linked Incentive):** A scheme that provides financial incentives to businesses based on their production and sales performance.
- Atmanirbhar Bharat:** A vision for India to become self-reliant by reducing dependency on imports and strengthening domestic industries.
- MSMEs:** Micro, Small, and Medium Enterprises that contribute significantly to economic growth and job creation.

## Sector-Specific Achievements

### Electronics Manufacturing (LSEM):

- Growth:** From 5.8 crore units in 2014-15 to 33 crore units in 2023-24.
- Exports:** 5 crore units exported.
- FDI Growth:** 254% increase in Foreign Direct Investment (FDI).

### Pharmaceuticals & Medical Devices:

- Position:** India is now the third-largest pharmaceuticals producer globally.
- Exports:** 50% of production is exported.
- Technology Transfer:** Advanced medical devices like CT scanners and MRI machines are now manufactured domestically.

### Automotive Industry:

- Investment:** US\$ 3 billion (25,938 crore) allocated.
- Applications:** 115 companies applied; 85 approved for incentives.
- Investment Attraction:** Expected to attract US\$ 8 billion (67,690 crore) in investments.

### Renewable Energy (Solar PV):

- Outlay:** US\$ 533.7 million (4,500 crore) for initial phase; second phase targets 65 GW solar manufacturing.
- Goal:** Create jobs, reduce imports, and innovate in solar technology.

### Telecom and Networking:

- Import Substitution:** 60% of telecom products are now manufactured locally.
- Exports:** India is becoming a major exporter of 4G and 5G telecom equipment.

### Drones and Components:

- Growth:** Sector turnover increased seven-fold.
- Focus:** Driven by MSMEs and start-ups, making India a global leader in drone manufacturing.

## Overview

- **India's Maritime Legacy:** 7,500 km coastline with 12 major ports and 200+ minor ports.
- **Global Significance:** Positioned on major global shipping routes, handling 95% of trade by volume and 70% by value.
- **Economic Growth:** Contributing 16% of global growth in 2023; projected to be the 3rd largest economy soon.
- **Sagarmanthan 2024:** South Asia's largest maritime forum organized by the Ministry of Ports, Shipping, and Waterways (MoPSW) in partnership with Observer Research Foundation (ORF).

## Themes of Sagarmanthan

- **Blue Economy:** Sustainable use of ocean resources for economic growth.
- **Global Supply Chains:** Strengthening maritime logistics to boost trade.
- **Maritime Governance:** Enhancing international cooperation and policy frameworks.
- **Sustainable Maritime Growth:** Focusing on eco-friendly practices, like green ports.

## Government Schemes

- **Sagarmala Programme:** Focus on port infrastructure, connectivity, and coastal development.
- **Maritime India Vision 2030 (MIV):** Blueprint for comprehensive sector growth across ports, inland waterways, and shipyards.
- **Inland Waterways Development:** 26 new national waterways to reduce congestion and provide sustainable transport options.

## India's Maritime Sector Overview

- **Cargo Processing:** 819 MT handled in 2024, a 4.45% increase.
- **Ports:** 12 major ports, 200+ minor ports.
- **Fleet:** 1,530 ships under India's flag; 3rd largest in ship recycling.
- **Port Capacity Growth:** Increased from 871.52 million tonnes in 2014-15 to 1,629.86 million tonnes in 2023-24.
- **Strategic Location:** A key position in global shipping, with most ships between East Asia, Europe, and Africa passing through Indian waters.

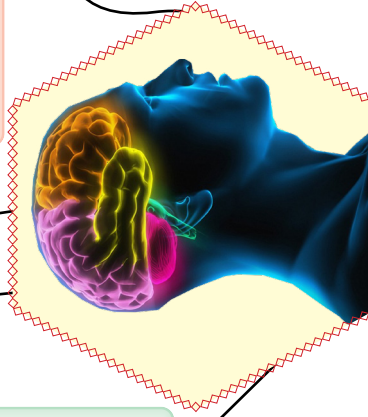
## Government Initiatives

- **FDI & Tax Benefits:** 100% FDI in port projects, 10-year tax holiday for port development.
- **Sagarmala Programme:** Flagship project for port-led development, enhancing port infrastructure and connectivity.
- **Maritime India Vision (MIV) 2030:** Comprehensive roadmap for global maritime leadership with 150+ initiatives.
- **Shipbuilding Financial Assistance Policy (SBFAP):** 337 crore financial aid to boost shipbuilding.
- **Green Initiatives:** Focus on eco-friendly shipping through programs like Green Tug Transition.

## Sagarmanthan 2024 – India's Maritime Vision

## Key Developments in 2024

- **Port Efficiency:** Reduced container turnaround to 22.57 hours, surpassing global standards.
- **New Shipping Company:** Aiming to add 1,000 ships within a decade to reduce foreign freight costs.
- **Port Performance:** Paradip Port became the largest port by cargo volume in FY24, handling 145.38 million tonnes.
- **Vadhavan Port:** A new major port at 76,220 crore for enhanced EXIM trade capacity.
- **Smart & Green Ports:** Transformation of ports like Jawaharlal Nehru and VO Chidambaranar into smart ports by next year.



# Places in News

## Guyana

- On November 20, 2024, Prime Minister Narendra Modi became the first Indian Prime Minister to visit Guyana in 56 years. He was welcomed with great warmth by Guyana's President, Mohamed Irfaan Ali, at Georgetown Airport.
- During the visit, Prime Minister Modi will co-chair the 2nd India-CARICOM Summit with Grenada's Prime Minister, Dickon Mitchell. The summit focuses on strengthening relations between India and CARICOM countries in areas like energy, infrastructure, agriculture, health, and technology.
- India and Guyana share a long-standing development partnership. Recent contributions from India include providing two HAL 228 aircraft, a seagoing yacht, solar lighting systems for 30,000 indigenous families, and training 800 Guyanese professionals under the ITEC program.

### About Guyana:

- Guyana, located on the northern edge of South America, shares borders with Venezuela, Brazil and Suriname and maritime borders with Barbados and Trinidad and Tobago.
- Its capital is Georgetown. Guyana is known for Mount Roraima, its highest point, and the Kaieteur Falls, which are five times higher than Niagara Falls.
- The Essequibo River is the largest in the country. Guyana is home to around 3,20,000 people of Indian origin, highlighting strong cultural ties between the two nations.



## Azerbaijan

- Azerbaijan, located in the South Caucasus region of Eurasia, is a transcontinental nation bridging Asia and Europe. Its capital, Baku, recently hosted the 2024 UN Climate Change Conference (UNFCCC COP 29). The country is bordered by Russia to the north, Georgia to the northwest, Armenia to the west, Iran to the south, and the Caspian Sea to the east.

### Political and Geographical Features:

- **Land Boundaries:** Borders Russia, Iran, Armenia, and Georgia.
- **Water Bodies:** The Caspian Sea lies to its east, crucial for Azerbaijan's trade and resources.
- **Major Rivers:** The Kura and Aras rivers are significant for the country's irrigation and agriculture.
- **Highest Peak:** Bazarduzyu, part of the Greater Caucasus range, is the country's highest point.
- **Territorial Dispute:** Azerbaijan has a longstanding dispute with Armenia over the Nagorno-Karabakh region.
- **Natural Resources:** Azerbaijan is rich in natural resources, particularly oil and natural gas, as well as minerals like lead, zinc, iron, and copper, which are central to its economy.
- Azerbaijan's strategic location and resource wealth play a significant role in its regional influence and geopolitical importance.





## Zambia

India and Zambia recently convened the 6th Session of their Joint Permanent Commission in Lusaka, reinforcing long-standing bilateral relations. This meeting marks another step in India's ongoing efforts to strengthen economic and diplomatic ties with African nations, with a particular focus on trade, investment, and cultural exchange.

### About Zambia:

- Located in south-central Africa, Zambia is a landlocked country characterized by its high plateau terrain. It is named after the Zambezi River, which drains most of the country, except for a small area in the north.
- Zambia is bordered by eight countries: the Democratic Republic of the Congo to the north, Tanzania to the northeast, Malawi to the east, Mozambique to the southeast, Zimbabwe and Botswana to the south, Angola to the west, and Namibia to the southwest.
- Its economy is heavily dependent on copper mining, a major contributor to its GDP. Zambians primarily speak Bantu languages, part of the Niger-Congo family.
- Zambia is home to significant landmarks such as Victoria Falls on the Zambezi River and Lake Kariba, the largest artificial reservoir by volume, created by the Kariba Dam.
- Its capital, Lusaka, serves as the political and economic hub of the country.



## Dominica

- The Commonwealth of Dominica announced its decision to bestow its highest national honor, the Dominica Award of Honour, on Indian Prime Minister Narendra Modi recognizing his pivotal role in strengthening ties between India and Dominica, particularly during the COVID-19 pandemic.
- The award was presented by Sylvie Berton, President of the Commonwealth of Dominica, during the India-CARICOM Summit, 2024, in Georgetown, Guyana.
- India's contribution to Dominica's pandemic response, including the provision of 70,000 doses of the AstraZeneca COVID-19 vaccine in February 2021, played a significant role in aiding vaccination efforts on the island and supporting neighboring Caribbean nations.
- The Dominica Award of Honour also recognizes India's continued assistance in areas such as healthcare, education, and information technology under Modi's leadership.
- **About Dominica:** Dominica, a member of the Commonwealth since 1978, is an island nation of volcanic origin in the Lesser Antilles, known for its distinctive Carib Indian population and rich alluvial soils. Key geographical features include Mount Diablotins and Mount Trois Pitons.



# Power Packed News

## Raigad Fort

- As part of the Rashtriya Ekta Divas celebrations, a replica of Raigad Fort was showcased, honoring Shivaji Maharaj's contributions to Indian history and military innovation.
- Raigad Fort served as the capital of the Maratha Empire under Chhatrapati Shivaji Maharaj. Renowned for its strategic significance and architectural brilliance, the fort is nominated for UNESCO World Heritage status as part of the "Maratha Military Landscapes of India."
- Captured in 1653 from the Mores, Raigad became the capital after Shivaji Maharaj's coronation in 1674.

### Raigad fort features:

- **Rajsadar (Hall of Public Audience):** The site of Shivaji Maharaj's court, renowned for its acoustic design.
- **Royal Complex:** This includes the Ranivasa, Naqqarkhana, and elegant towers, symbolizing the grandeur of Maratha rule.
- **Temples:** The Jagadishwar Temple and the Samadhi of Shivaji Maharaj are significant pilgrimage sites.

## Duma Boko becomes Botswana's New President

- Duma Boko has been named the new president of Botswana, marking a big change in the country's politics. He comes from the Umbrella for Democratic Change (UDC) party and takes over from the Botswana Democratic Party (BDP), which has ruled for many years. Chief Justice Terence Rannowane announced the news on national television.
- In Botswana, elections are held to choose 61 members for the National Assembly and 609 local councilors. To win the election, a party needs at least 31 seats in the National Assembly. In the recent elections, the UDC won 34 seats, while the BDP, which has been in power since Botswana became independent in 1966, only won 4 seats. This is a historic change because it is the first time the BDP has lost its majority in almost 60 years. The outgoing president, Mokgweetsi Masisi, accepted defeat.
- Duma Boko started his studies at the University of Botswana in 1987 and earned a law degree. He later attended Harvard Law School to get a Master of Laws degree. Boko also worked as a law lecturer at the University of Botswana, helping train future lawyers.

## India opened a New Consulate in Brisbane

- Recently, India opened a new consulate in Brisbane, marking an important step in strengthening ties with Australia. This is the first Indian consulate in Queensland and adds to the existing consulates in Melbourne, Perth, and Sydney, showing India's growing presence in Australia.
- The consulate will be led by Consul General Neetu Bhagotia, who has experience working in various Indian missions. The team at the consulate will support the Indian community, students, and businesses in Queensland, and will work to strengthen partnerships in economic, educational, and research fields.
- Queensland is key to India-Australia trade and is home to nearly 100,000 people of Indian origin, making up a significant part of the Indian community in Australia.
- The Economic Cooperation and Trade Agreement (ECTA) has created new trade opportunities in areas like investment, agriculture, manufacturing, and renewable energy, with India being the second-largest export market for Queensland.

## Exercise Vajra Prahar

15th edition of the joint military exercise Vajra Prahar was recently conducted by the special forces of India and the

United States, at the Orchard Combat Training Center in Idaho, USA. The previous edition was held in December 2023 at Umroi, Meghalaya. This will be the second exercise of the year between the Indian and US armies, the first being Exercise Yudh Abhyas 2024, which took place in Rajasthan in September 2024.

#### About Exercise Vajra Prahar:

- **First Edition:** The first edition of this joint exercise was conducted in 2010.
- **13th Edition:** The 13th edition of the India-US joint special military exercise was held at the Special Forces Training Center in Bakloh, Himachal Pradesh.

#### Other Military Exercises Between India and the US:

- **Army:**
  - » Vajra Prahar (Joint Special Forces Exercise)
  - » Yudh Abhyas (War Exercise)
- **Air Force:**
  - » Cope India
- **US Multinational Air Force Exercise:**
  - » Red Flag
- **Navy:**
  - » Passage Exercise
- **Trilateral Exercise:**
  - » Malabar Exercise - between India, the US, and Japan.

## Exercise Garuda Shakti

- The ninth edition of this exercise was recently held, at Cijantung in Jakarta, Indonesia. It involved 25 personnel from the Indian Army's Parachute Regiment (Special Forces) and 40 personnel from the Indonesian Special Forces, Kopassus.
- Exercise Garuda Shakti is a bilateral joint special forces exercise aimed at enhancing military cooperation between India and Indonesia.

#### Objectives:

- » **Increase Mutual Understanding:** Promote collaboration between the special forces of India and Indonesia.
- » **Share Best Practices:** Exchange experiences in counter-terrorism operations.
- » **Improve Interoperability:** Conduct joint operations and exercises.
- This exercise is a significant milestone in defense cooperation between India and Indonesia, which began in 2012. By participating in this joint exercise, both countries aim to promote peace and stability in the region.

## International Solar Alliance (ISA)

- India has been elected President of the International Solar Alliance (ISA) for a two-year term until 2026, with France as Co-President. This milestone underscores India's remarkable progress in solar energy, having expanded its capacity from under 2 GW in 2014 to 90 GW today.
- India's leadership in ISA will help promote global solar energy efforts, fostering collaboration among nations to share technology and best practices. Ashish Khanna will succeed Dr. Ajay Mathur as ISA Director General in 2025, strengthening ISA's global impact.
- ISA was established by Prime Minister Narendra Modi and President of France Francois Hollande on November 30, 2015.
- Its objective is to scale up solar energy, reduce the cost of solar power generation through aggregation of demand for solar finance, technologies, innovation, research and development, and capacity building. The ISA is headquartered in Haryana, India.

## VINBAX 2024

- The Vietnam-India Bilateral Army Exercise, VINBAX 2024, was conducted recently in Ambala, Haryana. This fifth edition aimed to enhance joint military capabilities and promote interoperability between India and Vietnam. For the first time, personnel from both the Indian Army and Air Force participated.
- The exercise reflects the growing defense cooperation between the two nations, which established a Comprehensive Strategic Partnership in 2016.
- VINBAX fosters collaboration through joint military exercises, defense dialogues, capacity building, and maritime cooperation, strengthening India-Vietnam ties and addressing regional security concerns in the Indo-Pacific.

## LignoSat

- Japan recently tested the world's first wooden satellite, LignoSat, developed by scientists from Kyoto University in collaboration with the homebuilder Sumitomo Forestry.
- The satellite, named after the Latin word for wood, will be launched to the International Space Station (ISS) aboard a SpaceX rocket.
- It was orbit for six months to test how well Japanese Honoki wood, sourced from magnolia trees, can withstand space's extreme conditions.
- This innovative material is environmentally friendly, as it will burn up harmlessly upon re-entry, unlike traditional satellites that release polluting metal particles when they disintegrate.

## World Wrestling Championship 2024

The 2024 World Wrestling Championships was held recently in Tirana, Albania. Athletes who participated in the 2024 Paris Olympic Games was not allowed to compete. India has already made a strong showing in wrestling this year, with Chirag Chikkara winning gold in the men's 57 kg competition at the U23 World Wrestling Championships.

- **Indian Medallists in U23 World Championships 2024:**
  - » Chirag Chikkara - Gold (Men's Freestyle 57 kg)
  - » Anjali - Silver (Women's Freestyle 59 kg)
  - » Shiksha - Bronze (Women's Freestyle 65 kg)
  - » Monika - Bronze (Women's Freestyle 68 kg)
  - » Neha Sharma - Bronze (Women's Freestyle 57 kg)
  - » Vishvajit More - Bronze (Men's Greco-Roman 55 kg)
  - » Vicky - Bronze (Men's Freestyle 97 kg)
  - » Sujeet Kalkal - Bronze (Men's Freestyle 70 kg)
  - » Abhishek Dhaka - Bronze (Men's Freestyle 61 kg)

## U.S. Presidential Election

- Republican Party candidate Donald Trump won the 2024 US presidential election, winning 295 electoral votes and 73,236,927 popular votes. His opponent Kamala Harris received 226 electoral votes and 68,859,041 popular votes.
- Trump became the first president to win a non-consecutive second term in more than a century. He won in key swing states such as Pennsylvania, North Carolina and Georgia. Trump's agenda focuses on border security, economic growth and national security, which will have an impact on global politics. Trump's victory is expected to have a significant impact on global politics, especially in areas such as trade, climate change and international relations.
- Trump will be sworn in as the 47th President of the United States on January 20, 2025. His running mate JD



Vance will take on the role of Vice President.

- The President of the United States serves as both head of state and head of government, and is also the commander-in-chief of the armed forces. According to Article II of the U.S. Constitution, the president is tasked with executing and enforcing the laws passed by Congress.

## Henley Passport Index, 2024

- Singapore has been ranked as the world's most powerful passport according to the Henley Passport Index, offering visa-free access to 195 countries. Italy, Japan, Germany, Spain, and France are tied for second place. India ranks 83rd, with visa-free access to 58 countries.
- The ranking is based on the number of countries a passport holder can travel to without requiring a visa. Austria, Denmark, Finland, Ireland, Luxembourg, the Netherlands, South Korea, and Sweden share the third spot, with access to 191 countries.
- The United States is ranked 8th, with visa-free access to 186 countries. The least powerful passports belong to Afghanistan, Syria, Iraq, Yemen, Somalia, and Pakistan.
- The Henley Passport Index is a global ranking that evaluates the travel freedom granted by countries' ordinary passports. It ranks passports based on the number of destinations their holders can access without a prior visa. Launched in 2005 as the Henley & Partners Visa Restrictions Index, it was rebranded to the Henley Passport Index in January 2018.

## Anil Pradhan awarded the Rohini Nayyar Prize for Rural Development

- Anil Pradhan, a 28-year-old social worker from Odisha, has been honored with the third Rohini Nayyar Prize for his remarkable contributions to rural development.
- This award was established by the Rohini Nayyar Foundation in memory of economist and administrator Dr. Rohini Nayyar, who passed away in 2021. It includes a cash prize of ₹10 lakh, along with a citation and a trophy.
- Pradhan, an innovative engineer and educationist, hails from Baral, Odisha, and pursued higher education in Bhopal. Known as the chief designer of Asia's first university rocket team, VSLV, Pradhan has focused his efforts on improving educational infrastructure and fostering grassroots innovation to uplift rural communities.
- During the award ceremony Dr. Nayyar's significant role in assessing multidimensional poverty and emphasized that education is key to rural development was highlighted. He called on civil society to actively support education in rural areas, underscoring the influence of committed individuals like Pradhan.
- This year's awardee was selected by a jury of academics and activists, recognizing Pradhan's impactful work in advancing rural development and social upliftment.

## ESA's RAMSES Mission

- The European Space Agency (ESA) has initiated the Rapid Apophis Mission for Space Safety (RAMSES) to study the asteroid Apophis, which is expected to pass within 31,860 kilometers of Earth on April 13, 2029. Apophis, a 340-meter-wide near-Earth object discovered in 2004, will pass safely by Earth but close enough to allow detailed observation.
- RAMSES will study Apophis's orbit, rotation, and shape of the asteroid. The insights gained could inform future methods to deflect asteroids that may pose threats to Earth.

### About Near-Earth Objects (NEOs):

- Asteroids like Apophis are remnants from the Solar System's formation, many of which pose potential risks to Earth. Among the estimated 35,000 near-Earth objects (NEOs), around 2,300 are classified as "potentially hazardous." Historical impacts, such as the one that contributed to the dinosaurs' extinction 66 million years ago,

underscore the importance of understanding and tracking these objects.

### NASA's Osiris-Apex Mission

- During this close approach, NASA will conduct its Osiris-Apex mission, which will examine Apophis's surface.
- Together, the RAMSES and Osiris-Apex missions represent a rare chance to observe a near-Earth object this closely, an opportunity that arises only every 5,000 to 10,000 years.

## India's Tanushree Pandey wins Silver at World Soft Tennis Championship

- Tanushree Pandey from India recently won a silver medal at the World Soft Tennis Championship, held in Jingshan, China. This achievement shows her talent and determination in the sport and brings recognition to India on the global stage.
- Tanushree's performance in the tournament was impressive. She began in the quarterfinals, where she defeated a strong Chinese opponent with a close score of 4-3.
- Moving to the semifinals, she faced a skilled Japanese player and won another match, with a 4-3 score, which secured her spot in the finals.
- In the final match, she played against Chiang Min Yu from Chinese Taipei. Though she lost narrowly with a 3-4 score, her performance was outstanding.

### Significance of Her Silver Medal:

- Winning the silver medal highlights Tanushree's skill in soft tennis and serves as an inspiration to young athletes in India. Her achievement not only raises awareness of the sport in India but also shows her potential for even greater successes in future tournaments.

### Understanding Soft Tennis:

- Soft tennis is a version of traditional tennis that uses softer balls and lighter rackets, making it easier for players of all ages. Played on smaller courts, it is popular in countries like Japan and Taiwan and requires speed, precision, and strategy.
- The World Soft Tennis Championship is a highly prestigious tournament that brings together elite players from across the world. Participants compete in different categories, such as singles and doubles, highlighting the top talent in the sport of soft tennis.

## Common Cat Snake

- The common cat snake (*Boiga trigonata*) was recently discovered in Bihar, specifically in the Valmiki Tiger Reserve. This rare and mildly venomous species was spotted near the Kotaraha guest house in 2022 by nature guide Rajiv Arya.
- The common cat snake is known for its distinct cat-like eyes, which change shape depending on the time of day. During the day, its pupils are narrow slits, while at night, they expand into round shapes, aiding in its nocturnal hunting.
- This snake is primarily nocturnal, becoming active after sunset to hunt small animals such as lizards, frogs, rats, and birds.
- Its venom is not life-threatening to humans but helps subdue its prey, contributing to the control of local animal populations.

### Conservation and Habitat

- The Valmiki Tiger Reserve plays a key role in preserving the common cat snake and its ecosystem. Given its rarity, protecting its habitat is crucial for ensuring the species' survival.

## 'AUSTRAHIND' 2024

- The third edition of the annual joint military exercise “AUSTRAHIND” between India and Australia was commenced recently in Pune.
- Conducted alternately in both nations, AUSTRAHIND aims to enhance interoperability between Indian and Australian forces, especially for joint sub-conventional operations in semi-urban and semi-desert environments under the United Nations mandate. The last edition took place in Australia in December 2023.
- This year’s exercise is organized in two main phases: combat preparation and tactical training, followed by a validation phase.
- Key activities include establishing a Joint Operations Centre, occupying designated areas in response to hypothetical terrorist threats, and conducting joint counter-terrorism operations such as raids, search-and-destroy missions, and more.
- Both sides also exchanged best practices in tactics, techniques, and operational procedures at the Overseas Training Node.

## Justice Sanjiv Khanna sworn in as the 51st CJI

- Justice Sanjiv Khanna was recently sworn in as the 51st Chief Justice of India at Rashtrapati Bhavan.
- President Draupadi Murmu presided over the swearing-in ceremony, officially administering the oath of office to Justice Khanna, who succeeded Justice Dhananjaya Yashwant Chandrachud. Justice Chandrachud concluded his tenure on November 10, following a distinguished career on the Supreme Court bench.
- Justice Khanna’s appointment as Chief Justice was confirmed by a formal notification from the Government of India, and he will hold the position for a term of six months.
- Justice Khanna began his legal career in 1983 as an advocate registered with the Delhi Bar Council. His judicial journey continued with his appointment as an additional judge of the Delhi High Court in 2005, where he was made a permanent judge by 2006. In January 2019, he was elevated to the Supreme Court, where he served until his current appointment.

## Zhurong Rover

- China’s Zhurong rover, part of the Tianwen-1 mission, has provided evidence that Mars once harbored an ocean billions of years ago. The rover, which landed in Mars’ Utopia Planitia in 2021, discovered geological features such as sediment channels, troughs, and mud volcanoes, suggesting the presence of an ancient coastline.
- Combined with data from NASA’s Mars Reconnaissance Orbiter, the findings point to an ocean existing around 3.68 billion years ago, which likely froze in its later stages.
- The study supports the theory of varying marine environments on early Mars, raising the possibility that microbial life could have existed. The ocean is believed to have vanished by approximately 3.42 billion years ago, as Mars transitioned from a potentially habitable planet to a cold, dry world.
- This discovery offers new insights into Mars’ water history and its potential for past life. It also deepens the mystery of what happened to the planet’s water, with other studies suggesting large reservoirs of liquid water may still exist deep beneath the Martian surface.

## Shiv Nadar topped the Hurun India Philanthropy List 2024

- Shiv Nadar, the founder of HCL Technologies, has topped the Hurun India Philanthropy List 2024 with a remarkable ₹2,153 crore donation. The list, which recognizes India’s most generous philanthropists, places Mukesh Ambani and his family in second place with a contribution of ₹407 crore. The Bajaj family follows closely in third, donating ₹352 crore.
- Krishna Chivukula, a new entrant, has become the most generous individual on the list, with a donation of ₹228 crore. The Adani Group rounds out the top five, with a philanthropic contribution of ₹330 crore.

- Among women philanthropists, Rohini Nilekani leads the top 10 with a donation of ₹154 crore. Additionally, Nikhil Kamath, co-founder of Zerodha, stands out as the youngest philanthropist, contributing ₹120 crore to the Rainmatter Foundation.
- The Hurun India Philanthropy List highlights the increasing trend of corporate and individual contributions toward societal welfare, underscoring the role of philanthropy in addressing India's pressing challenges.

## Gujarat becomes the First State in India with Dedicated Semiconductor Policy

- Gujarat has become the first state in India to implement a dedicated semiconductor policy with the introduction of the Gujarat Semiconductor Policy 2022-2027. The policy aims to establish Gujarat as a leader in semiconductor self-reliance, driving advancements in the sector.
- A key milestone in this initiative was the laying of the foundation stone for Micron's advanced semiconductor assembly, test, mark, and pack (ATMP) plant in Sanand, by Chief Minister Bhupendra Patel.
- Additionally, Tata Electronics, in collaboration with Taiwan's Powerchip Semiconductor Manufacturing Corporation (PSMC), is setting up India's first AI-enabled semiconductor fabrication facility in Dholera's 'Semicon City'.
- The policy includes significant incentives such as a 100% one-time refund on stamp duty and registration fees, a ₹2 per unit electricity subsidy, and a ₹12 per cubic metre water rate.
- Dholera, envisioned as India's first Greenfield Smart City, is also being developed with a 75% land acquisition subsidy for semiconductor units.

## India's First Space-Based Exercise, 'Antariksha Abhyas-2024'

In response to evolving threats to space assets, India launched its first-ever space exercise, Antariksha Abhyas – 2024, inaugurated in New Delhi. Conducted over three days, this exercise is organized by the Defense Space Agency under the Integrated Defense Personnel Headquarters, with participation from personnel across the Army, Navy, and Air Force.

### About Antariksha Abhyas:

- Antariksha Abhyas – 2024 is a pioneering initiative aimed at bolstering India's preparedness for space-related defense operations and understanding the infrastructure dependencies inherent to space-based assets.
- The event underscores India's intent to advance its national strategic objectives in space and integrate its space capabilities more deeply into military operations. Participants will collaborate to identify procedural gaps and strategize responses to potential disruptions in space-based services.
- This special event also provides an opportunity to address process-related dependencies in space and identify procedural responses in the event of an interruption, strengthening the country's defense readiness in the space domain. Through Antariksha Abhyas, India reaffirms its commitment to safeguarding its assets in outer space.

## Tayyab Ikram re-elected President of the International Hockey Federation

- At the 49th International Hockey Federation (FIH) Statutory Congress in Muscat, Oman, Tayyab Ikram was re-elected as President for a full four-year term.
- Pakistan-born Ikram, who previously served a two-year term, initially stepped into the role in 2022 following the resignation of former President Narinder Batra. His re-election signals stability and continuity in the FIH's leadership, fostering a sense of sustained progress in global hockey governance.



- Ikram's continued leadership aligns with the FIH's mission to support the development of both indoor field hockey and field hockey worldwide.
- Alongside Ikram, Danae Andrada (URU), Alberto Daniel Budski (ARG), and Erik Cornelissen (NED) were re-elected as members of the FIH Executive Board, with Katrin Kauschke (GER) also joining the Board.
- Headquartered in Lausanne, Switzerland, the FIH oversees field hockey's international development, rules, and tournament organization. Ikram's leadership is expected to further advance the sport's global reach, promoting inclusivity and growth across member nations.

## Eurasian Otter

- A rare Eurasian Otter (*Lutra lutra*) was rescued in Indapur, Pune District, marking the first recorded sighting of this species in the area. The discovery, made by the Pune Forest Department and RESQ Charitable Trust, followed a call regarding a civet trapped in a well.
- Forest guards and RESQ team members executed a six-hour operation using an auto-trap cage to safely retrieve the otter, later transporting it to the Wildlife Transit Treatment Centre in Pune for assessment.
- This unexpected sighting is significant as Eurasian Otters are usually found in Europe, the Himalayan foothills, and parts of Northeast India. Typically inhabiting clean, freshwater environments rich in fish, these otters are solitary, nocturnal, and sensitive to pollution.
- Eurasian Otters are classified as Near Threatened by the IUCN, are protected under India's Wildlife Protection Act (Schedule II) and listed in Appendix I of CITES, highlighting their conservation importance.

## Haiti's New Leadership amidst Crisis

- Alix Didier Fils-Aime has been sworn in as the new Prime Minister of Haiti, replacing Garry Conille, who was dismissed by the Transitional Presidential Council. This council, formed in April, was tasked with selecting new political leaders and organizing elections in an effort to stabilize the country.
- Haiti, a Caribbean nation, is currently facing a severe humanitarian crisis, further exacerbated by escalating gang violence. In the first three months of 2024 alone, gang-related violence led to approximately 2,500 deaths or injuries. The security situation remains critical, especially in the capital, Port-au-Prince, where violence is severely disrupting daily life.
- As the new Prime Minister, Fils-Aime faces the formidable challenge of addressing these urgent issues. His primary responsibilities will be improving national security, combating gang violence, and overseeing the organization of elections.
- Haiti's future stability will depend on effectively resolving these crises, which will require strong leadership, effective governance, and international cooperation.

## 16th India Game Developer Conference in Hyderabad

- The 16th India Game Developer Conference (IGDC) recently began in Hyderabad, attracting over 20,000 attendees. Organized by the Game Developer Association of India (GDAI), it is one of the most important events in the gaming industry.
- The conference includes more than 150 sessions and features over 250 speakers, including notable industry figures like Jordan Weisman, creator of BattleTech, and Tim Morten, known for StarCraft II.

### About India Game Developer Conference (IGDC):

- The IGDC provides a platform for professionals to discuss the latest trends, challenges, and innovations in the gaming industry. It focuses on encouraging creativity and technical skills and has become a key event for India's growing video game sector.
- The conference also plays a significant role in shaping policies and developing infrastructure to support the

industry's growth.

## Jhiri Mela

- Jhiri Mela was organised recently in Jammu city. Celebrated in Jhiri village on the outskirts of Jammu, Jhiri mela commemorates the supreme sacrifice of Baba Jitto, a 16th-century Dogra hero and honest farmer. Baba Jitto is remembered for his stand against injustice after being deceived by a local landlord, sacrificing his life for truth and justice.
- The festival attracts around 20 lakh visitors annually, offering a platform to promote regional unity, honesty, and courage. Pilgrims from across the region visit Jhiri to pay homage to Baba Jitto, making it a vibrant cultural and spiritual event.
- The Mela also showcases traditional arts and crafts, providing local artisans an opportunity to exhibit their skills to a broader audience. Government departments actively participate in the fair, utilizing the platform to promote rural development schemes and welfare programs.
- The event symbolizes the rich cultural heritage of Jammu and Kashmir and fosters community engagement through its emphasis on values such as integrity and resilience.

## Fourth Edition of Coastal Defence Exercise 'Sea Vigil-24'

- The fourth edition of the Pan-India Coastal Defence Exercise, Sea Vigil 24 was concluded recently, showcasing India's focus on maritime security.
- The 36-hour exercise covered the country's 11,098 km coastline and a 2.4 million sq. km Exclusive Economic Zone. Over 21 agencies from six ministries participated, including the Indian Navy, Army, Air Force, Coast Guard, State Marine Police, and port authorities.
- The exercise involved the deployment of more than 550 maritime assets and 60 air sorties, amounting to 200 flying hours. Before the main phase, a seven-day Coastal Defence and Security Readiness Evaluation (CDSRE) audited 950 critical coastal locations like fishing hubs, lighthouses, ports, and offshore assets.
- Key areas of focus included securing oil rigs, ports, and merchant vessels, with drills like simulated hijackings and vessel rerouting. Fishing communities and youth groups actively participated through community outreach programs, promoting grassroots awareness of maritime security.
- Since its launch in 2018, Sea Vigil has been vital in improving India's coastal defence. The 2024 edition further enhanced inter-agency coordination and preparedness, reaffirming India's resolve to protect its maritime borders.

## Asia's Largest Open-Air Trade Fair 'Bali Jatra' Begins in Odisha

- The Bali Jatra, Asia's largest open-air trade fair, was organised recently in Odisha to honor the region's rich maritime history. The fair began on the full moon day of Kartika.
- It commemorates Odisha's ancient sea-trading tradition, where traders, known as Sadhabas, embarked on maritime voyages in boats called Boitas from the Mahanadi River to distant lands during Kartika Purnima.
- The festival not only celebrates Odisha's historical connection with maritime trade but also showcases its cultural heritage. Various cultural groups from Odisha and other Indian states perform traditional dances, including Odissi, Chhau, Mahari, Gotipua, and Bihu, adding vibrancy to the event.
- Bali Jatra attracts visitors from across the country and beyond, offering an immersive experience of Odisha's heritage, crafts, and cuisine. It also serves as a platform for trade and cultural exchange, connecting people with the state's glorious past.

## Prime Minister Modi honoured with Nigeria's Prestigious Award

- Prime Minister Narendra Modi was recently conferred with the Grand Commander of the Order of the Niger (GCON) by Nigeria, marking a historic moment as he became the second foreign dignitary to receive this prestigious award.
- The GCON is Nigeria's second-highest national distinction, with Queen Elizabeth being the first foreign recipient in 1969. Prime Minister Modi accepted the honour with humility, dedicating it to the 140 crore people of India and the strong friendship between India and Nigeria.
- This award marks the 17th international recognition Prime Minister Modi has received, reflecting the growing global appreciation for his leadership.
- During his visit, Prime Minister Modi was also presented with the 'Key to the City' of Abuja by Minister for Federal Capital Territory Nyesom Ezenwo Wike.
- Modi's visit to Nigeria is the first by an Indian Prime Minister in 17 years. After concluding his trip to Nigeria, he will proceed to Brazil to attend the G20 summit and then to Guyana, as part of his three-nation visit at the invitation of Nigerian President Bola Ahmed Tinubu.

## Manoj Bajpayee's 'The Fable' wins Best Film at Leeds International Film Festival

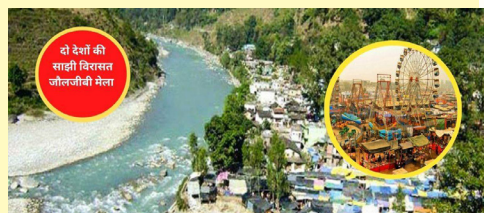
- At the 38th Leeds International Film Festival (LIFF) in the UK, Manoj Bajpayee's film, The Fable, won the prestigious Best Film award in the Constellation Feature Film Competition.
- The competition celebrates pioneering cinema from around the world, and The Fable was recognized for its creative storytelling and cinematic excellence.
- Directed by Ram Reddy, The Fable has already gained significant attention, having had its world premiere at the Berlinale Film Festival 2024.
- The film's success at the LIFF follows a series of accolades, including winning the Special Jury Prize at the 2024 MAMI Mumbai Film Festival.

### About Leeds International Film Festival:

- The Leeds International Film Festival, which is one of the largest film festivals in England outside London, is a significant platform for filmmakers, with a focus on showcasing new and innovative films. The Fable's recognition at such a prestigious festival highlights the growing international reputation of Indian cinema.

## Jauljibi Mela of Uttarakhand

- The Jauljibi Mela, a significant cultural event in Uttarakhand, was inaugurated by Chief Minister Pushkar Singh Dhami recently in Pithoragarh.
- Held at the scenic confluence of the Goriganga and Kali rivers in the Dharchula Tehsil, Jauljibi has a rich historical legacy as a former hub for animal trade fairs. Today, it serves as a border town with a modest bazaar marking the Indo-Nepal border, and it remains a key site for trade and cultural exchange.
- The fair is celebrated as a "priceless heritage" of the state, promoting mutual harmony between India, Tibet, Nepal, and border areas. The fair provides a platform for small traders, farmers, and artisans to showcase their products, contributing to the local economy and promoting cultural exchanges.
- During the inauguration, Chief Minister Dhami laid the foundation stone for 18 development schemes worth Rs 64.47 crore, which aim to enhance infrastructure and economic growth in the region.



- Additionally, the government has launched the State Millet Mission to promote local crops like Mandwa and Jhingoor. The Chief Minister also emphasized the development of mythological temples under the Manaskhand Temple Mala Mission, which will further attract visitors and support tourism in the area.

## Tulsi Gabbard

- Tulsi Gabbard has been appointed as the United States Director of National Intelligence (DNI) by President Donald Trump. Gabbard, a 43-year-old U.S. Army reservist and former Democratic congresswoman, holds a significant political history. In 2002, at just 21, she became the youngest woman elected to the Hawaii State Legislature.
- Later, in 2012, she made history as the first Hindu elected to the U.S. House of Representatives, where she represented Hawaii from 2013 to 2021. Her tenure in Congress was marked by a focus on foreign policy and national security issues.
- The appointment is subject to Senate approval. If confirmed, Gabbard will oversee a \$70 billion budget and manage 18 intelligence agencies, making her one of the key figures in the U.S. intelligence community.
- As DNI, Gabbard will play a critical role in coordinating intelligence efforts across agencies to address national and international security threats. Her appointment highlights her extensive experience in public service and military leadership, emphasizing her potential to shape the future of U.S. intelligence operations.

## Oriental Pied Hornbill

- The villagers of Mayong in Assam's Morigaon district have pioneered a successful community-based conservation effort for the oriental pied hornbill (*Anthracoceros albirostris*), a member of the Bucerotidae family.
- These birds, identifiable by their unique casque, are found in tropical and subtropical regions, including the Indian subcontinent.
- In India, nine hornbill species exist, with only the oriental pied hornbill listed under Schedule II of the Wildlife Protection Act (1972), while the others are under Schedule I. The great hornbill, also vulnerable, is the state bird of Arunachal Pradesh and Kerala.
- Hornbills play a critical ecological role as seed dispersers and are revered by local cultures, including the Nagas, who celebrate the Hornbill Festival in their honor.
- Their conservation also boosts eco-tourism, attracting bird watchers, researchers, and students. However, habitat loss and hunting for their casques, feathers, and medicinal value remain significant threats to hornbill populations.

## India wins Women's Asian Champions Trophy in Hockey

- India recently won the Women's Asian Champions Trophy in Hockey, securing their second consecutive title.
- The final match, held at the Rajgir Hockey Stadium in Bihar, saw India defeat China 1-0. Deepika scored the winning goal in the 31st minute from a penalty corner, and finished the tournament as the top scorer with 11 goals. She was also named the best player of the tournament.
- This victory marked India's third Women's Asian Champions Trophy title, equaling South Korea's record of three wins. India had previously won the title in 2016 and 2023. Japan secured third place by defeating Malaysia 4-1 in the bronze medal match.

### About Women's Asian Champions Trophy:

- The Women's Asian Champions Trophy is a biennial international competition featuring the top six women's hockey teams from Asia. The tournament includes teams from member associations of the Asian Hockey Federation. South Korea holds the most titles, with three wins, while India and Japan have each won the tournament twice. This tournament continues to highlight the competitive spirit and skill of Asian women's hockey teams.



## New Microbe identified affecting Sesame Plants in West Bengal

- Researchers have identified a new microbe responsible for a peculiar disease affecting sesame crops in Midnapore, West Bengal. Researchers, led by Prof. Gaurab Gangopadhyay from Bose Institute, identified the causative agent as a bacterium called Candidatus Phytoplasma, a type of Mollicutes bacteria.
- This bacterium thrives in the phloem of plants and is transmitted primarily through phloem-feeding insects such as leafhoppers and plant-hoppers.
- The disease results in sesame plants reverting to a vegetative state after reaching the flowering and fruiting stages. Flowers that are typically white with pinkish tinges turn green, disrupting the crop's normal growth cycle.
- Sesame, known as the "Queen of Oil," has been valued for its medicinal properties, including antioxidants that benefit heart health. However, a recent disease has caused a significant concern for sesame farmers in the region.
- This discovery, published in the Plant Molecular Biology Reporter in 2024, sheds light on the disease's impact on sesame plants' metabolic pathways. Understanding this microbe could lead to better management strategies for sesame crops, which are crucial for India's agricultural and economic sectors.

## WAVES: Prasar Bharati's New OTT Platform for Digital Streaming

Prasar Bharati recently launched its new OTT platform, WAVES, at the 55th International Film Festival of India (IFFI) in Goa. The platform is designed to meet the growing demand for digital streaming services while maintaining a focus on family-friendly and culturally rich content.

### Key Features:

- **Content Selection:** WAVES offers classic Indian television shows like Ramayan, Mahabharat, Shaktimaan, and Hum Log, reviving nostalgia for older generations while appealing to modern viewers.
- **Diverse Offerings:** The platform includes a mix of news, documentaries, and regional content, supporting inclusivity and reflecting India's cultural diversity.
- **Multi-Language and Multi-Genre:** WAVES provides content in over 12 languages and spans more than ten genres, catering to a wide audience across the nation. Special Programs: Notably, WAVES will feature live broadcasts such as the Aarti of Lord Shri Ram Lalla from Ayodhya and the Prime Minister's Mann Ki Baat.

## Abdoulaye Maiga appointed Prime Minister of Mali

Mali's ruling junta recently appointed Abdoulaye Maiga as the new Prime Minister, replacing Choguel Maiga, who was dismissed after publicly criticizing the administration. The decision reflects growing tensions and divisions within the political landscape of Mali.

### About Mali:

- Mali is a landlocked country in West Africa, known for its vast deserts and rich historical significance. It is bordered by Algeria to the north, Niger to the east, Burkina Faso and Ivory Coast to the south, Guinea to the southwest, Senegal and Mauritania to the west.
- The country's geography is dominated by the Sahara Desert in the north and the Sahel, a semi-arid region, stretching through the central part of the country.
- The Niger River, one of the longest rivers in Africa, flows through the southwestern part of the country, providing vital water resources.

## Dinesh Bhatia appointed as India's Ambassador to Brazil

- The Ministry of External Affairs has appointed Dinesh Bhatia, a 1992 batch Indian Foreign Service officer, as the

next Ambassador of India to Brazil.

- Currently serving as India's Ambassador to Argentina, Bhatia will take over his new role after his tenure in Argentina, where he assumed office on August 21, 2019.
- Bhatia's diplomatic career includes significant assignments such as Consul General of India in Toronto and Ambassador to Côte d'Ivoire, Guinea, and Liberia.
- He also held a role in the Department of Atomic Energy in Mumbai and served as Private Secretary to the Minister of Tourism of India.
- Bhatia is also an author, having written *Devi Purana*, a version of the *Srimad Devi Bhagavatam*, published by Bloomsbury in 2023, and *Physics for the Civil Services Preliminary Examination*, published in 1994.

## Rare Imperial Eagle Spotted in Pulluzhi Kole Wetlands

- A rare Imperial Eagle (*Aquila heliaca*) was recently spotted in the Pulluzhi kole wetlands. This marks the first sighting of the species in the region since its last reported presence in Kannur in 2003, according to data from eBird.
- The Imperial Eagle primarily breeds in southeastern Europe, western and central Asia, migrating to northeastern Africa, West Asia, and parts of Southeast Asia during the winter.
- The species is listed as at risk of extinction by the International Union for Conservation of Nature (IUCN), underscoring the urgency of its conservation, as noted by ornithologist Manoj Karingamadathil.
- The Thrissur-Ponnani kole fields, a significant birdwatching hub managed by the Kole Birders Collective, have seen multiple sightings of endangered eagle species this season, including the greater spotted eagle and the Indian spotted eagle.

## Sadhaya Vizha Celebration

- The Sadhaya Vizha, held annually during the Tamil month of Aippasi (mid-October to mid-November), commemorates his birth anniversary in Thanjavur, Tamil Nadu.
- The celebration birth anniversary of Raja Raja Chola I centers around the Brihadeeswarar Temple, a masterpiece of Chola architecture dedicated to Lord Shiva, where Raja Raja's devotion is honored. The event includes religious ceremonies like the sacred abhishekam (holy bath) and a procession of the deity. Cultural performances, such as classical dance and hymn singing, add to the festivities.

### About Raja Raja Chola I:

- Raja Raja Chola I, born Arulmozhi Varman in 947 CE, was one of the most renowned rulers in history, whose reign (985–1014 CE) marked both military triumph and cultural prosperity.
- Revered as Raja Raja the Great, he expanded the Chola Empire to Sri Lanka and the Maldives. His life is immortalized in Kalki Krishnamurthy's novel *Ponniyin Selvan* and its subsequent film adaptations.
- The Brihadeeswarar Temple also houses inscriptions detailing its construction, rituals, and Raja Raja's personal contributions.

## Cyclone Fengal

- Cyclone Fengal, the second cyclone of the post-monsoon season following Cyclone Dana, recently impacted the Indian coast, with Tamil Nadu in its path. The name Fengal was proposed by Saudi Arabia.
- Classified as a deep depression over the northwest Bay of Bengal, the system moved north-northwestwards later intensifying into a cyclonic storm.
- The North Indian Ocean region, encompassing the Bay of Bengal and the Arabian Sea, is prone to cyclones that frequently move towards Tamil Nadu and Andhra Pradesh.

### About Tropical Cyclone:

- Tropical Cyclones are intense weather systems forming between the Tropics of Capricorn and Cancer, with winds exceeding 34 knots (63 km/h) as per the World Meteorological Organization.
- Powered by sea heat, they are driven by easterly trade winds, westerlies, and planetary winds, sustaining their energy through ocean-atmosphere interactions.
- These cyclones can cause severe impacts like heavy rainfall, strong winds, and storm surges, particularly in coastal areas.

## Surface Hydrokinetic Turbine Technology

The Central Electricity Authority (CEA) has recognized Surface Hydrokinetic Turbine (SHKT) technology as an innovative and cost-effective solution for renewable energy generation.

### About Surface Hydrokinetic Turbine Technology:

- Surface Hydrokinetic Turbine Technology generates electricity using the kinetic energy of flowing water without requiring dams or barrages, offers power at 2-3 per unit.
- SHKT technology is particularly valuable for areas with limited grid access, offering base-load, round-the-clock renewable energy.
- Its ability to integrate with existing water infrastructure, such as canals and hydropower tailrace channels, positions it as a scalable solution for enhancing India's renewable energy capacity to gigawatt levels.
- Economically, SHKT presents low installation costs, making it attractive for renewable energy buyers and generators. Environmentally, it minimizes ecological disruption by eliminating the need for large-scale civil infrastructure.
- It aligns with India's goals for net-zero emissions by providing a sustainable alternative to conventional hydropower.

## IIT-K Launches Anālakshya Metamaterial Surface Cloaking System (MSCS)

- IIT-Kanpur has unveiled the An lakshya Metamaterial Surface Cloaking System (MSCS), a significant breakthrough in stealth technology.
- Developed by Professors Anantha Ramakrishna, Kumar Vaibhav Srivastava, and J. Ramkumar, this cutting-edge system offers near-perfect wave absorption across a broad spectrum, significantly enhancing radar invisibility.
- The technology improves SAR imaging resistance and provides effective protection against radar-guided missiles.

### About Analakshya MSCS:

- The Anlakshya MSCS is a textile-based broadband metamaterial microwave absorber, designed to boost stealth capabilities, making it a critical advancement for defense.
- By countering radar detection methods, particularly Synthetic Aperture Radar (SAR), it offers substantial improvements in the radar invisibility of military assets, marking a major leap forward in defense technology.

## India rises to 49th Position in Network Readiness Index 2024

- India has climbed 11 ranks to secure the 49th position in the Network Readiness Index (NRI) 2024, up from 60th in 2023.
- The NRI evaluates 133 economies across four pillars: Technology, People, Governance, and Impact. It has been published by the Portulans Institute, an independent non-profit research and educational institute based in Washington DC.
- India ranks 1st in AI scientific publications, AI talent concentration, and ICT services exports. It also holds 2nd place in FTTH/Building Internet subscriptions and mobile broadband internet traffic. Additionally, India is 3rd in domestic market scale and 4th in annual investment in telecom services.

- The Digital India initiative has been instrumental in expanding broadband access, boosting tele density from 75.2% to 84.69%, and increasing internet subscribers from 25.1 crore to 94.4 crore.
- India also improved its global mobile broadband speed ranking from 118th to 15th after launching 5G services in 2022.
- Looking ahead, India's Bharat 6G Vision aims to make it a leader in future telecom technologies, reflecting its ongoing digital progress and innovation.

## Masato Kanda elected as ADB's 11th President

- The Asian Development Bank (ADB) Board of Governors has elected Masato Kanda as the 11th President of ADB. Kanda currently serves as Special Advisor to Japan's Prime Minister and Minister of Finance.
- He will take office in February 2025 and will succeed Masatsugu Asakawa. Kanda will complete the remaining term of Asakawa, which ends on 23 November 2026.

### About ADB:

- ADB, established in 1966, is a regional development bank based in Manila, Philippines. It aims to promote social and economic development in Asia. The bank also has 31 field offices around the world.
- ADB has 68 members now, including countries from the UN Economic and Social Commission for Asia and the Pacific, as well as non-regional developed countries. When it was founded, ADB had 31 members.

## K4 Missile

- India successfully tested a nuclear-capable ballistic missile, the K4, from its nuclear-powered submarine, INS Arighaat, in the Bay of Bengal. This test marks a significant advancement in India's nuclear deterrence and strategic capabilities, placing it among a select group of nations capable of launching nuclear missiles from land, air, and sea.
- The K4 missile, with a range of about 3,500 km, was tested near Visakhapatnam. It is a solid-fuelled missile, previously tested from submersible platforms.
- The test demonstrated the missile's near full range, contributing to India's goal of strengthening its nuclear deterrence with the commissioning of INS Arighaat, a submarine equipped with indigenous systems designed by Indian scientists and engineers.
- This missile test comes shortly after India's successful flight test of a long-range hypersonic missile, which can travel at speeds exceeding Mach 5 (about 1,220 km/h).
- Hypersonic missiles, which are highly maneuverable, represent a key focus of India's military advancements in response to growing regional tensions, particularly with China.

## India's First AI Data Bank launched to strengthen National Security

- India has launched its first Artificial Intelligence (AI) data bank, a significant step toward promoting innovation and strengthening national security. The initiative was unveiled by the Union Minister of Science and Technology during the 7th Edition of the ASSOCHAM AI Leadership Meet 2024.
- The AI data bank will provide researchers, startups, and developers with access to high-quality, diverse datasets necessary to create scalable and inclusive AI solutions.
- Themed "**AI for India: Driving India's AI Development - Innovation, Ethics, and Governance**," the event highlighted India's strategic plan to leverage AI's transformative capabilities.
- A key feature of the AI data bank is its role in enhancing national security by enabling real-time analysis of satellite, drone, and IoT data. This initiative aligns with India's broader goals of utilizing AI for predictive analytics in disaster management and bolstering cybersecurity.



## K Sanjay Murthy sworn in as Comptroller and Auditor General of India

- K Sanjay Murthy has been appointed as the Comptroller and Auditor General (CAG) of India. He took the oath of office at Rashtrapati Bhavan, New Delhi, administered by President Droupadi Murmu.
- He replaces Girish Chandra Murmu, who served as CAG since August 2020. Before this role, Sanjay Murthy was the Secretary of the Department of Higher Education in the Ministry of Education.

### About Comptroller and Auditor General (CAG) of India:

- The position of the CAG is established under Article 148 of the Indian Constitution. The CAG leads the Indian Audit and Accounts Department and ensures proper financial management at both the central and state levels. Known as the guardian of the public purse, the CAG monitors the country's financial system to ensure it aligns with the Constitution and the laws made by Parliament.
- The CAG is a key figure in India's democracy, working to ensure transparency and accountability in financial matters. This helps strengthen governance and build public trust in the management of national resources.

## Armenia Joins the International Solar Alliance as its 104th Member

- Armenia has become the 104th full member of the International Solar Alliance (ISA), solidifying its commitment to advancing solar energy.
- The country formally joined by handing over the Instrument of Ratification during a meeting in New Delhi between Armenian Ambassador Vahagn Afyan and the Joint Secretary of the Ministry of External Affairs, Abhishek Singh.

### About International Solar alliance:

- The ISA, a treaty-based international intergovernmental organization headquartered in India, seeks to mobilize over USD 1,000 billion in investment by 2030 to facilitate the large-scale deployment of solar energy.
- Its mission is to overcome global barriers related to technology, finance, and capacity in expanding solar energy usage.

## PM Modi honored with Global Peace Award in Washington

- The Association of Indian American Minorities (AIAM), a newly established non-governmental organization, was officially launched recently, at the Sligo Seventh-day Adventist Church in Maryland. AIAM seeks to unite minority communities within the Indian American diaspora and promote their welfare.
- During its inaugural event, Prime Minister Narendra Modi was conferred the prestigious Dr. Martin Luther King Jr. Global Peace Award for Minority Upliftment. The award, jointly presented by Washington Adventist University and AIAM, acknowledged his efforts toward fostering inclusive growth and advancing minority welfare.

### About AIAM:

- AIAM aims to strengthen the unity among Indian Americans while fostering their active contribution to the multicultural landscape of the United States. Renowned Sikh philanthropist Jasdeep Singh was appointed as the organization's Founder and President, supported by a seven-member Board of Directors representing diverse minority communities.
- AIAM is poised to play a significant role in promoting harmony, addressing socio-economic challenges, and enhancing the representation of Indian American minorities in the broader societal framework of the United States.

# One Liners

1.	Atanu Das won the bronze medal at the Swiss Open Indoor Archery Championship.
2.	Maharashtra's contribution to India's GDP decreased from 15.2% to 13.3%, reflecting a change in the country's economic situation.
3.	India won 17 medals, including four golds, at the Under-19 World Boxing Championship.
4.	Praveena Rai assumed charge as the CEO and MD of MCX (India's leading commodity exchange).
5.	Himachal Pradesh's Bankhandi is set to become India's first zoo to receive a sustainability certificate from the Indian Green Building Council (IGBC).
6.	The joint military exercise 'Vajra Prahar' between India and the United States' special forces took place from November 2-22 in Idaho, strengthening defense cooperation between the two countries.
7.	The seventh assembly of the International Solar Alliance (ISA) was inaugurated on November 4 in New Delhi, aiming to promote solar energy globally.
8.	Indian economist Bibek Debroy passed away on November 1.
9.	The government plans to begin India's next Census in 2025, an important step in collecting demographic data.
10.	The 'Garud Shakti 24' military exercise between India and Indonesia was held, strengthening defense ties between the two countries.
11.	The National Stock Exchange (NSE) added 3 million new client accounts in just eight months, bringing the total number of accounts to 200 million.
12.	Union Home Minister Amit Shah launched the Citizen Registration System (CRS) mobile app, which will simplify birth and death registration in India.
13.	Mansi Ahlawat won the bronze medal at the Senior World Wrestling Championship, continuing India's wrestling success.
14.	Uttar Pradesh's Advance Ruling Authority (UPAAR) announced an 18% tax on prepaid vouchers, clarifying taxation on these items.
15.	India unveiled its updated National Biodiversity Strategies and Action Plan (NBSAP).
16.	The India-Vietnam bilateral military exercise 'VINBAX 2024' began on November 4 in Ambala, Haryana.
17.	India was elected President of the International Solar Alliance until 2026.
18.	India launched its first analog space mission via ISRO, which will plan experiments for the lunar mission.
19.	A Memorandum of Understanding (MoU) was signed between India and Algeria on November 4 for bilateral defense cooperation.
20.	Bharat Forge won a major contract for the Indian Army's ATAGS Howitzer.
21.	The Madhya Pradesh government increased compensation for human deaths caused by wildlife attacks from 8 lakh to 25 lakh rupees.
22.	India's Foreign Minister S. Jaishankar inaugurated the Indian Consulate in Brisbane.
23.	The Indian Institute of Astrophysics (IIA), Bengaluru, announced the first significant results from the Aditya-L1 mission.
24.	The Kannada short film "Sunflowers Were the First Ones to Know" was nominated for the 2025 Oscars.
25.	Japan tested the world's first wooden satellite.
26.	The first Asian Buddhist Summit was held in Delhi on November 5-6.
27.	The International Allied Health Conference (IAHC 2024) inaugurated the Global Allied Health Network.
28.	Famous fashion designer Rohit Bal passed away at the age of 63.
29.	India's Services Index reached 58.5 in October, reflecting significant growth and optimism in the service sector.

30. The Asian Development Bank (ADB) signed a loan agreement of \$200 million to improve water supply and essential services in Uttarakhand.
31. Donald Trump won the 2024 US elections, marking a significant shift in the American political landscape.
32. Mandeep Jangra won the World Boxing Federation (WBF) World Title, a major achievement in his boxing career.
33. A joint panel has been formed between Madhya Pradesh and Rajasthan to better implement the Cheetah Project.
34. The Uttar Pradesh Cabinet approved a semiconductor project that will enhance the state's technological and industrial capabilities.
35. The government approved the PM-Vidyalaxmi Scheme, which will provide financial assistance to meritorious students for higher education and skill development.
36. The Cabinet approved a massive investment of 10,700 crore to strengthen the Food Corporation of India (FCI).
37. The Uttar Pradesh government amended guidelines for appointing the Director-General of Police (DGP).
38. Singapore's passport was ranked the most powerful in the world according to the Henley Passport Index.
39. NTPC and ONGC set up a joint venture to use renewable energy sources.
40. India formally bid to host the 2036 Olympics.
41. The Supreme Court allowed light motor vehicle (LMV) license holders to operate transport vehicles weighing up to 7,500 kg.
42. The Indian Navy hosted the third Ocean Summit on Maritime Security.
43. The Canadian government decided to end the fast-track study visa program, affecting international students seeking quick visa approvals.
44. The Women's Asian Hockey Champions Trophy 2024 was held in Rajgir, Bihar.
45. Renowned Sarangi player Pandit Ram Narayan passed away at the age of 96.
46. The world's highest endurance mountain biking race "Mondoro 4.0" started in Tawang, Arunachal Pradesh.
47. National Education Day 2024 was celebrated on November 11, dedicated to Maulana Abul Kalam Azad's birthday and his contributions to the education system.
48. Harshvardhan Agrawal was appointed as the new president of the Federation of Indian Chambers of Commerce and Industry (FICCI).
49. Justice Sanjeev Khanna took the oath as India's 51st Chief Justice.
50. India's steel exports saw double-digit growth in October, reflecting an increase in global demand.
51. World Immunization Day was celebrated on November 10, emphasizing the importance of vaccination in improving global public health and preventing diseases.
52. The Assam Government launched a platform for healthcare innovation in collaboration with IIT Guwahati.
53. Afghanistan's cricket legend Mohammad Nabi announced his retirement from ODI cricket after the Champions Trophy.
54. The government launched the "Medical Device Industry Empowerment Plan", aimed at promoting innovation, manufacturing, and exports in the medical device sector.
55. Israeli researchers developed an innovative software that allows computers to process data directly in memory, promising to boost computational power and speed.
56. The foundation stone for the PV Sindhu Badminton Centre was laid in Visakhapatnam, a significant step towards promoting badminton and sports infrastructure in India.

57.	'AUSTRAHIND', a joint military exercise between India and Australia, began on November 8 in Pune, aimed at strengthening defense cooperation and interoperability.
58.	The prestigious 3rd Rohini Nayyar Award was presented to 28-year-old engineer Anil Pradhan from Odisha for his outstanding contribution to engineering and technology.
59.	NTPC launched the world's first CO <sub>2</sub> -to-methanol conversion plant at its Vindhyachal plant, marking a significant step in sustainable energy and carbon-reducing technologies.
60.	State Bank of India (SBI) launched an innovation hub at the Singapore FinTech Festival, showcasing its commitment to promoting financial technology and innovation globally.
61.	Shiv Nadar topped the 2024 Hurun India Philanthropy List, reflecting his continued leadership and significant contributions to charitable work and social welfare initiatives.
62.	The first Digital Population Clock was launched in Bengaluru, providing real-time data on the city's population dynamics.
63.	Gujarat became India's first state to implement a dedicated semiconductor policy, promoting investment and growth in the semiconductor sector.
64.	National Legal Service Day was observed on November 9, highlighting the importance of legal aid and justice for marginalized communities.
65.	The 83rd Annual Session of the Indian Road Congress commenced in Raipur, focusing on progress in road infrastructure, safety, and sustainable transport policies.
66.	The Financial Services Institutions Bureau (FSIB) recommended Rahul Bhawe for the position of MD and CEO of IFCI Limited.
67.	The Zirri Mela began on November 14 in Jammu and Kashmir, a ten-day cultural and religious festival attracting thousands of pilgrims and tourists.
68.	Prime Minister Narendra Modi inaugurated the first Bodoland Festival in New Delhi on November 15, celebrating the rich cultural heritage of the Bodoland region.
69.	India and Russia signed a Memorandum of Understanding (MoU) on November 4 to collaborate on the Pantseer Air Defense System, strengthening defense relations between the two countries.
70.	Reliance Industries merged its media assets with Walt Disney's India division, becoming a major player in India's media and entertainment sector.
71.	The Ministry of Home Affairs declared the jurisdiction of six police stations in Manipur as "disturbed areas" due to security concerns.
72.	The Indian Institute of Science (IISc) developed an eco-friendly bio-derived foam, providing a sustainable alternative to traditional foams used in various industries.
73.	Kazakhstan, Azerbaijan, and Uzbekistan signed an agreement to enhance regional cooperation in the energy sector, focusing on energy system integration.
74.	World Diabetes Day was observed on November 14, raising awareness about the prevention, management, and importance of a healthy lifestyle for diabetes.
75.	Dominica announced it would award Prime Minister Modi its highest national honor.
76.	Tribal Pride Day was celebrated on November 15, honoring the culture, contributions, and heritage of tribal communities across India.
77.	The Minerals Ministry signed an MoU with the International Energy Agency (IEA) to collaborate on critical minerals, increasing India's access to resources essential for stable energy development.
78.	West Bengal won the team title at the 4th National FinSwimming Championship, showcasing their excellence in water sports.



# MCQs Based on Current Affairs

## 1. Consider the following statements about the TATA Aircraft Complex for C-295:

1. The complex is located in Vadodara, Gujarat.
2. It will manufacture a total of 56 C-295 aircraft for the Indian Air Force.
3. The facility is solely funded by the Indian government.

How many of the above statements is/are correct?

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

## 2. Consider the following statements about the 17th Urban Mobility India (UMI) Conference & Exhibition 2024:

1. Bhubaneswar was recognized as the "City with the Best Public Transport System."
2. The conference was organized by the Ministry of Home Affairs.
3. Gurugram has been announced as the venue for the 18th UMI Conference & Exhibition in 2025.

How many of the above statements is/are incorrect?

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

## 3. Consider the following statements about Raigad Fort:

1. Raigad Fort served as the capital of the Maratha Empire under Chhatrapati Shivaji Maharaj.
2. The fort was captured in 1653 from the Mughals.
3. Raigad Fort features a Hall of Public Audience known as Rajsadar, celebrated for its acoustic design.

How many of the above statements is/are correct?

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

## 4. Consider the following statements about the

## 2024 World Wrestling Championships:

1. The championships were held from 28 to 31 October 2024 in Tirana, Albania.
2. Athletes who participated in the 2024 Paris Olympic Games were allowed to compete.
3. Chirag Chikkara won a silver medal in the men's 57 kg competition at the U23 World Wrestling Championships.

How many of the above statements is/are correct?

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

## 5. Consider the following statements about India's ranking in the Nature Conservation Index (NCI):

1. India ranked 176 out of 180 countries with a score of 45.5 out of 100.
2. The index assesses countries based on three pillars of evaluation.
3. India received a score of 0 out of 100 in managing marine protected areas.

How many of the above statements is/are incorrect?

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

## 6. Consider the following statements about the WHO's Global TB Report 2024:

1. India has recorded a 17.7% decline in TB incidence from 237 cases per lakh population in 2015 to 195 in 2023, which is more than double the global decline of 8.3%.
2. The treatment coverage for TB in India has declined to 72% in 2023, down from 89% in 2015.
3. The government has increased the monthly allowance for TB patients from 500 to 1,000 to provide better nutritional support under Nikshay Poshan Yojana (NPY).

How many of the above statements is/are correct?

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

**7. Consider the following statements about Exercise Garuda Shakti:**

1. The ninth edition of Exercise Garuda Shakti is being held from November 1 to 12, 2024, at Cijantung in Jakarta, Indonesia.
2. The exercise involves personnel from both the Indian Army's Parachute Regiment and the Indonesian Army's Kopassus.
3. The Exercise Garuda Shakti was conducted since 2010.

How many of the above statements is/are correct?

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

**8. Consider the following statements about Exercise Vajra Prahar:**

1. The 15th edition of Exercise Vajra Prahar is being conducted in November 2024 at the Orchard Combat Training Center in Idaho, USA.
2. The first edition of Exercise Vajra Prahar was held in 2008.
3. The 14thth edition of the exercise was conducted at the Special Forces Training Center in Bakloh, Himachal Pradesh.

How many of the above statements is/are correct?

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

**9. Consider the following statements about India's updated National Biodiversity Strategy and Action Plan (NBSAP) unveiled at COP 16 in Colombia:**

1. The updated NBSAP aims to halt biodiversity loss

by 2030 and promote a sustainable relationship with nature by 2050, in alignment with the Kunming-Montreal Global Biodiversity Framework (KMGBF).

2. India's NBSAP includes a focus solely on species conservation and does not prioritize ecosystem restoration or community-driven initiatives.
3. The updated NBSAP was developed with the involvement of 23 central ministries, state organizations, and local communities, with an emphasis on a collaborative approach.

How many of the above statements is/are correct?

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

**10. Consider the following statements regarding the Prevention of Money Laundering Act (PMLA):**

1. It is an Act to prevent money laundering and to provide for the confiscation of property derived from or involved in money laundering.
2. The Financial Intelligence Unit – India (FIU-IND), under the Department of Revenue, is responsible for investigating the offenses of money laundering under the PMLA.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

**11. Consider the following statements about the Vietnam-India Bilateral Army Exercise, VINBAX 2024:**

1. VINBAX 2024 is being held in Ambala, Haryana, from November 4-23, and marks the fifth edition of the exercise.
2. Personnel from both the Indian Army and Navy are participating for the first time in VINBAX 2024.
3. The exercise is a part of India's efforts to strengthen its Comprehensive Strategic Partnership with Vietnam, established in 2016.

How many of the above statements is/are correct?

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

**12. Consider the following statements about the International Solar Alliance (ISA):**

1. India has been elected President of ISA for a two-year term until 2026, with France as Co-President.
2. ISA's headquarters is located in Haryana, India, and it was established in 2016 by Prime Minister Narendra Modi and President Francois Hollande.
3. Ashish Khanna will succeed Dr. Ajay Mathur as ISA Director General in 2025, further strengthening the organization's global impact.

How many of the above statements is/are correct?

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

**13. Consider the following statements about the world's first wooden satellite, LignoSat:**

1. LignoSat, developed by Kyoto University in collaboration with Sumitomo Forestry, will be launched aboard a SpaceX rocket to the International Space Station (ISS).
2. The satellite is made from Japanese Honoki wood, sourced from magnolia trees, to test its durability in space's extreme conditions.
3. Unlike traditional satellites, LignoSat will release harmful metal particles upon re-entry, making it more environmentally hazardous.

Which of the above statements is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. None of the above

**14. Consider the following statements about India's Aditya-L1 mission:**

1. The primary payload of Aditya-L1, the Visible

Emission Line Coronagraph (VELC), has enabled precise measurements of Coronal Mass Ejections (CMEs).

2. Aditya-L1 is positioned at the Earth-Moon Lagrange point (L1) to study the Sun's coronal dynamics and solar wind acceleration.
3. One of the key objectives of Aditya-L1 is to investigate the impact of solar flares on Earth's power grids and GPS systems.

How many of the above statements is/are correct?

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

**15. Consider the following statements about the 'Chalo India Campaign':**

1. The 'Chalo India Campaign' allows Overseas Citizens of India (OCI) cardholders to nominate up to five foreign nationals for free e-visas.
2. The campaign specifically targets increasing inbound tourism from the United Kingdom.
3. OCI cardholders can register nominations for the 'Chalo India Campaign' through a special online portal.

How many of the above statements is/are correct?

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

**16. Consider the following statements about the Director General of Police (DGP), Uttar Pradesh Selection and Appointment Rules, 2024:**

1. The selection committee for the DGP will be chaired by the Chief Minister of Uttar Pradesh.
2. The new rules require that the DGP serve a minimum tenure of two years once appointed.
3. The eligibility criteria for the DGP position stipulate that officers must have at least six months of service remaining before retirement from the date of the DGP vacancy.

How many of the above statements is/are correct?

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

**17. Consider the following statements about the Supreme Court's Landmark Judgment on Private Property:**

1. The judgment reaffirmed that the state can acquire private property for any purpose under the doctrine of "Eminent Domain," without the need to justify the purpose.
2. Article 300A of the Indian Constitution ensures that property rights are a legal right.

Which of the above statements is/are correct?

- A. 1 only
- B. 2 only
- C. Both
- D. None of the above

**18. Consider the following statements about the Supreme Court's ruling on the Uttar Pradesh Board of Madarsa Education Act, 2004:**

1. The Supreme Court upheld the constitutional validity of the Madarsa Act, including provisions that allow the Madarsa Board to confer higher education degrees like Fazil and Kamil.
2. The Court emphasized that while madrasas can provide religious education, the state has the right to regulate secular education in these institutions to ensure quality standards.
3. The Court ruled that the Madarsa Act violates the Right to Education (RTE) Act by not adhering to the prescribed standards for secular education.

How many of the above statements is/are correct?

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

**19. Consider the following statements about the \$200 million loan agreement signed between**

**ADB and India:**

1. The loan agreement is part of the Uttarakhand Livability Improvement Project, which aims to enhance urban services in the state.
2. The project is cofinanced by the European Investment Bank and the state government, bringing the total project cost to \$465.9 million.
3. The Asian Development Bank (ADB) is a regional development bank established on 19 December 1966

How many of the above statements is/are correct?

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

**20. Consider the following statements about the Henley Passport Index, 2024:**

1. Singapore holds the top spot in the Henley Passport Index with visa-free access to 195 countries.
2. India ranks 83rd in the Henley Passport Index, with visa-free access to 58 countries.
3. The Henley Passport Index was launched in 2018 and focuses on ranking passports based on the number of countries one can access without a visa.

How many of the above statements is/are correct?

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

**21. Consider the following statements about Rohini Nayyar Prize:**

1. Anil Pradhan, a 28-year-old social worker from Odisha, received the third Rohini Nayyar Prize for his contributions to rural development.
2. The Rohini Nayyar Prize includes a cash prize of 5 lakh, along with a citation and a trophy.
3. Anil Pradhan is known as the chief designer of Asia's first university rocket team, VSLV.

How many of the above statements is/are correct?

- A. Only one
- B. Only two



- C. All three  
D. None

**22. Consider the following statements about the PM-Vidyalaxmi Scheme:**

1. The PM-Vidyalaxmi scheme offers collateral-free and guarantor-free education loans to students admitted to Quality Higher Education Institutions (QHEIs).
2. The scheme includes a financial allocation of 3,600 crore for the period 2024-2029.
3. The central government will provide a 75% credit guarantee for education loans up to 7.5 lakh under the scheme.

How many of the above statements is/are correct?

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

**23. Consider the following statements about Donald Trump's victory in the 2024 U.S. presidential election:**

1. Donald Trump won the 2024 U.S. presidential election by securing 295 electoral votes, exceeding the required 270 votes.
2. Kamala Harris received 226 electoral votes in the 2024 election.
3. Trump's victory marks his first non-consecutive term in over a century, making him the 47th President of the United States.
4. JD Vance will be sworn as Vice President alongside Trump on January 20, 2025.

How many of the above statements is/are correct?

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

**24. Consider the following statements about ESA's Rapid Apophis Mission for Space Safety (RAMSES):**

1. RAMSES aims to study the asteroid Apophis, which is expected to pass within 31,860 kilometers of Earth

in April 2029.

2. RAMSES will study the orbit, rotation, and shape of Apophis, while NASA's Osiris-Apex mission will analyze its surface.
3. The asteroid Apophis, with a width of 340 meters, was discovered in 1994 and is classified as a potentially hazardous object.

How many of the above statements is/are correct?

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

**25. Consider the following statements about Tanushree pandey:**

1. Tanushree Pandey won a silver medal at the World Soft Tennis Championship held in Jingshan, China.
2. In the final match, Tanushree lost to Chiang Min Yu from Chinese Taipei with a score of 3-4.
3. Soft tennis is played on larger courts and uses traditional tennis balls, making it more challenging than regular tennis.

How many of the above statements is/are correct?

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

**26. Consider the following statements about the Common Cat Snake (Boiga trigonata):**

1. The Common Cat Snake was recently discovered in the Valmiki Tiger Reserve, Bihar,
2. This snake is primarily diurnal and hunts during the day, using its narrow slit-shaped pupils to spot prey.
3. The venom of the Common Cat Snake is not life-threatening to humans but is used to subdue its prey.

How many of the above statements is/are correct?

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

**27. Consider the following statements regarding**

**the Supreme Court's 2024 ruling on Aligarh Muslim University's (AMU) minority status:**

1. The Supreme Court of India has overturned its 1967 ruling and granted AMU the status of a minority institution based on its historical context and founding purpose.
2. The 1967 ruling denied AMU minority status.
3. The Court has established a new test for determining minority status, focusing only on the legal manner of establishment.

How many of the above statements is/are correct?

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

**28. Consider the following statements about UN-Habitat:**

1. UN-Habitat was established in 1978 following the first UN Conference on Human Settlements (Habitat I).
2. The headquarters of UN-Habitat is located in Geneva, Switzerland.
3. UN-Habitat works with governments, civil society, academic institutions, and the private sector to promote sustainable urban development.

How many of the above statements is/are correct?

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

**29. Consider the following statements about the UNEP Adaptation Gap Report 2024:**

1. The adaptation finance gap for developing countries is estimated at \$187–359 billion per year, with an annual need of \$387 billion by 2030.
2. The Glasgow Climate Pact aims to double adaptation finance to \$38 billion by 2025.
3. The report highlights that investing \$16 billion annually in agriculture could prevent 78 million people from facing hunger and starvation due to

climate change.

How many of the above statements are correct?

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

**30. Consider the following statements about the UNESCO Global Education Monitoring Report 2024:**

1. Report said that since the adoption of the UN Sustainable Development Goal on Education in 2015, global progress has led to 110 million more children entering school and 40 million more completing secondary education.
2. Over half of the world's out-of-school children are located in South Asia, a region characterized by significant education inequalities.
3. In 2022, low-income countries spent \$55 per learner on education, while high-income countries spent \$8,543 per learner.

How many of the above statements are correct?

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

**31. Consider the following statements about the world's first CO<sub>2</sub>-to-methanol conversion plant inaugurated by NTPC Limited:**

1. The plant, located at NTPC's Vindhyachal power plant in Madhya Pradesh, captures 20 tonnes of CO<sub>2</sub> per day and produces 10 tonnes of methanol daily.
2. The methanol produced by the plant is primarily used as a feedstock for manufacturing plastics, with no direct application in transportation.
3. NTPC's CO<sub>2</sub>-to-methanol conversion plant contributes to India's climate goals under the Paris Agreement and supports the country's ambition to reach net-zero emissions by 2070.

How many of the above statements are correct?

- A. Only one

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

**32. Consider the following statements about the 1st Global Ministerial Conference on Ending Violence Against Children:**

1. The conference, held in November 2024 in Bogotá, Colombia, focused on addressing the issue of violence against children.
2. The event was co-hosted by the governments of Colombia and Sweden, with support from the World Bank and the United Nations Development Programme (UNDP).

Which of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None

**33. Consider the following statements about RNA editing:**

1. RNA editing modifies the exons of mRNA, allowing scientists to alter protein outcomes without changing the underlying genetic code.
2. RNA editing offers a higher risk of immune response compared to DNA editing because it uses bacterial-derived tools, such as CRISPR, to alter the RNA sequence.

Which of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None

**34. Consider the following statements with reference to Pradhan Mantri TB Mukh Bharat Abhiyaan (PMTBMBA):**

1. Pradhan Mantri TB Mukh Bharat Abhiyaan (PMTBMBA) was launched on September 9, 2021.
2. This program aims to eliminate TB by 2025, five years ahead of the global goal to end TB by 2030.
3. It was first articulated by the Hon'ble Prime Minister

at the Delhi End TB Summit in March 2017.

How many statements is/ are correct?

- A. Only 1
- B. Only 2
- C. All statements
- D. None

**35. Consider the following statements with reference to India Maldives relationship:**

1. India was the first countries to recognize the Maldives after its independence in 1960
2. A comprehensive Action Plan was signed between India and Maldives in 2016 to strengthen defense ties.
3. India became the Maldives' second-largest trade partner in 2022 and largest in 2023, with bilateral trade reaching nearly \$1 billion in 2023-24

Which of the above statements is/ are correct?

- A. Only 1 and 2
- B. Only 1 and 3
- C. Only 2 and 3
- D. All of the above

**36. Consider the following statements with reference to prison reform:**

1. The Model Prison Manual 2016 prioritizes rehabilitation, skill-building, and vocational training to foster personal growth and development among prisoners
2. The Model Prisons and Correctional Services Act, 2023, aims to address prison reforms, promoting equity and eliminating caste-based discrimination
3. The Model Prison Manual 2016 and the Model Prisons and Correctional Services Act, 2023, demonstrate India's commitment to prison reform and rehabilitation.

How many statements is/ are correct?

- A. Only 1
- B. Only 2
- C. All statements
- D. None

**37. Consider the following statements:**

1. Recently International Agency for Research on Cancer estimates that one in five individuals is at risk of developing cancer in their lifetime.
2. Cancer is a disease in which some of the body's cells grow uncontrollably and spread to other parts of the body.

Which of the above statements is/ are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None of the above

**38. Where will the Indian Institute of Foreign Trade (IIFT) establish its first overseas campus?**

- A. London
- B. Dubai
- C. Singapore
- D. New York

**39. Consider the following statements:**

1. Recently, 6th National Water Awards were presented by President of India, Smt. Droupadi Murmu, on October 22, 2024.
2. Odisha received the first prize in the Best State category.
3. 1st National Water Awards were given in 2019.

Which of the above statements is/are incorrect?

- A. Only 1 and 2
- B. Only 2 and 3
- C. Only 1 and 3
- D. All of the above

**40. Consider the following statements about Cyclone Dana:**

1. The cyclone hit Tamil Nadu and Kerala.
2. Cyclone Dana was named by Qatar.
3. cyclone is a large air mass that rotates around a strong center of high atmospheric pressure

Which of the above statements is/are incorrect?

- A. Only 1 and 2
- B. Only 2
- C. Only 1 and 3
- D. All of the above

**41. Consider the following statements regarding INS Suvarna:**

1. Recently, INS Suvarna made a port call at Dar Es Salaam during its anti-piracy deployment in October 2024.
2. INS Suvarna (P52) is a Sukanya-class patrol vessel commissioned on April 4, 1991.
3. Dar Es Salaam, located along the Indian Ocean coast, is Tanzania's largest city and economic capital.

Which of the above statements is/are correct?

- A. Only 1 and 2
- B. Only 2 and 3
- C. Only 1 and 3
- D. All of the above

**42. When were the first Commonwealth Games held?**

- A. 1954, Vancouver, Canada
- B. 1930, Hamilton, Canada
- C. 1978, Edmonton, Canada
- D. 2022, Birmingham, England

**43. Consider the following statements regarding the recent decision on satellite spectrum in India:**

1. Satellite spectrum in India will now be assigned administratively rather than through auctions.
2. The International Telecommunication Union (ITU) manages satellite spectrum allocation globally.
3. The Telecommunications Act, 2023 mandates that all spectrum must be assigned through auctions.

How many statements are correct?

- A. Only 1
- B. Only 2
- C. All three
- D. None

**44. Consider the following statements about the Jhiri Mela:**

1. Jhiri Mela is a popular fair held annually in Jhiri village, Jammu, India, to honor the legendary farmer and folk hero, Baba Jitto
2. Baba Jitto, a 16th-century Dogra farmer, sacrificed his life in 1552 AD while fighting against the oppressive



policies of the Mughal rulers

Which of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None

**45. Consider the following statements regarding Operation Dronagiri and the National Geospatial Policy 2022:**

1. Operation Dronagiri was launched on November 13, 2024, at the Indian Institute of Technology (IIT) Delhi with a focus on revolutionizing agriculture, livelihoods, and logistics & transport using geospatial technologies.
2. The pilot phase of Operation Dronagiri will be implemented in five states: Uttar Pradesh, Haryana, Assam, Andhra Pradesh, and Maharashtra, chosen for their similar geographical and socio-economic conditions.
3. The National Geospatial Policy 2022 aims to position India as a global leader in geospatial technology by 2030, with key milestones like achieving high-resolution surveys by 2025 and developing a National Digital Twin of cities by 2035.

How many of the above statements are correct?

- A. Only 1
- B. Only 2
- C. All three
- D. None

**46. Consider the following statements about the Bali Jatra festival in Odisha:**

1. Bali Jatra is Asia's largest open-air trade fair and commemorates Odisha's ancient maritime trading tradition, particularly the voyages of traders known as Sadhabas.
2. The festival takes place on the full moon day of Kartika and concludes on November 22.
3. The cultural performances at Bali Jatra are limited to Odissi dance from Odisha, with no participation from other states.

4. Bali Jatra serves as a platform for both trade and cultural exchange, promoting Odisha's crafts, cuisine, and historical connections with maritime trade.

How many of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Only 3
- D. All Four

**47. Consider the following statements about Prime Minister Modi's recent visit to Nigeria:**

1. Prime Minister Narendra Modi was conferred with Nigeria's highest national distinction, the Grand Commander of the Order of the Niger (GCON).
2. Queen Elizabeth was the first foreign dignitary to receive the Grand Commander of the Order of the Niger (GCON) in 1969.

Which of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Both
- D. None

**48. Consider the following statements about Manoj Bajpayee's film The Fable:**

1. The Fable won the prestigious Best Film award at the 38th Leeds International Film Festival (LIFF) in the Constellation Feature Film Competition.
2. The Fable was directed by Manoj Bajpayee and has received widespread recognition for its storytelling and cinematic excellence.
3. The film had its world premiere at the 2024 Berlinale Film Festival.
4. The Fable won the Special Jury Prize at the 2024 MAMI Mumbai Film Festival.

How many of the above statements are correct?

- A. Only 1
- B. Only 2
- C. Only 3
- D. All Four

**49. Consider the following statements about BSNL's direct-to-device satellite internet service:**

- BSNL's satellite internet service is India's first direct-to-device satellite internet service, offering connectivity in remote and underserved regions without the need for traditional broadband infrastructure.
- The service operates using Low Earth Orbit (LEO) satellites and requires users to install satellite dishes or receivers on their devices.
- BSNL's satellite internet service allows users to make emergency calls and send SOS messages even when cellular or Wi-Fi networks are unavailable.
- One of the major benefits of BSNL's satellite internet service is its quick deployment, making it ideal for disaster-stricken areas and remote regions where traditional internet infrastructure is difficult to deploy.

How many of the above statements are correct?

- Only 1
- Only 2
- Only 3
- All Four

#### 50. Consider the following statements about Prime Minister Modi's visit to Guyana:

- Prime Minister Narendra Modi's visit to Guyana on November 20, 2024, made him the first Indian Prime Minister to visit the country in 56 years.
- During his visit, Prime Minister Modi co-chaired the 2nd India-CARICOM Summit with Guyana's President Mohamed Irfaan Ali.
- India and Guyana have a long-standing partnership, with India contributing two HAL 228 aircraft, a seagoing yacht, and solar lighting systems for 30,000 indigenous families.
- Guyana, known for its Mount Roraima and Kaieteur Falls, shares borders with Venezuela, Brazil, and Suriname.

How many of the above statements are correct?

- Only 1
- Only 2
- Only 3
- All Four

## ANSWER

1	B
2	A
3	A
4	A
5	A
6	B
7	B
8	A
9	B
10	A

11	B
12	C
13	B
14	B
15	C
16	B
17	B
18	A
19	C
20	B

21	B
22	B
23	C
24	B
25	B
26	B
27	A
28	B
29	C
30	B

31	B
32	A
33	A
34	A
35	C
36	C
37	C
38	B
39	C
40	C

41	D
42	B
43	C
44	C
45	B
46	C
47	B
48	C
49	C
50	C