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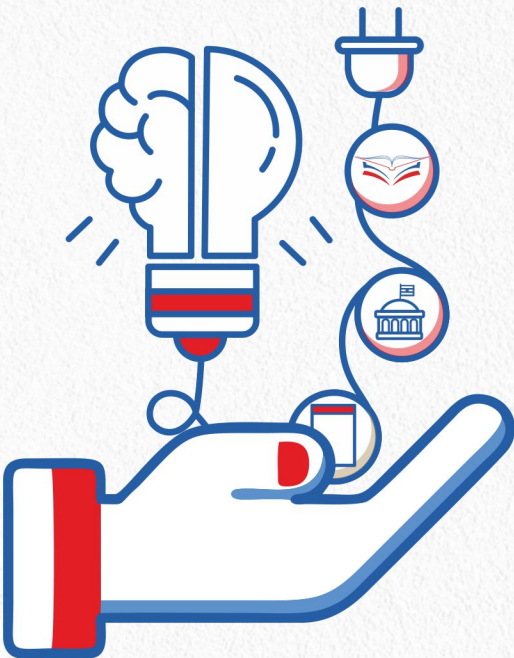
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OPTIONAL SUBJECT CLASSES 2027



- » Political Science and International Relations
- » Public Administration
- » Physics

18 APRIL

- » Sociology

11 MAY

- » Geography

27 APRIL

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NOTE:

Dear Students,

Memorisation and recollection of information in Current Affairs is as important as understanding the articles. In order to enhance the learning outcomes from the Monthly Current Affairs Magazine, we are introducing following additions:



A thematic based colors has been used in the document in the boxes, tables etc to enable easy identification and recollection of various concepts and topics.



Questions are an important tool to assess and retain information. To enable this we are adding a Smart Quiz at the end of each section in the document for practicing the questions.



A wide variety of infographics have been added to ensure smoother learning experience and enhanced retention of the information. This will also help in effective presentation of information in the answer writing as well.



Places and persons in news are being presented in an objective manner through Maps, Tables & Pictures. This will help in easier recollection of factual information.



फाउंडेशन कोर्स सामान्य अध्ययन

प्रारंभिक एवं मुख्य परीक्षा 2027

इनोवेटिव क्लासरूम प्रोग्राम

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- प्रारंभिक परीक्षा, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक का विस्तृत कवरेज
- मौलिक अवधारणाओं की समझ के विकास एवं विश्लेषणात्मक क्षमता निर्माण पर विशेष ध्यान
- एनीमेशन, पॉवर प्वाइंट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
- योजनाबद्ध तैयारी हेतु करंट ओरिएंटेड अप्रोच
- नियमित क्लास टेस्ट एवं व्यक्तिगत मूल्यांकन
- प्री फाउंडेशन कक्षाएं
- सीसैट कक्षाएं
- PT 365 कक्षाएं
- MAINS 365 कक्षाएं
- PT टेस्ट सीरीज
- मुख्य परीक्षा टेस्ट सीरीज
- निबंध टेस्ट सीरीज
- सीसैट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करेंट अफेयर्स मैगजीन

नोट: ऑनलाइन छात्र हमारे पाठ्यक्रम की लाइव वीडियो कक्षाएं अपने घर पर ऑनलाइन प्लेटफॉर्म पर देख सकते हैं। छात्र लाइव चैट विकल्प के माध्यम से कक्षा के दौरान अपने संदेह और विषय संबंधी प्रश्न पूछ सकते हैं। वे अपने संदेह और प्रश्न नोट भी कर सकते हैं और दिल्ली केंद्र में हमारे कक्षा सलाहकार को बता सकते हैं और हम फोन/मेल के माध्यम से प्रश्नों का उत्तर देंगे।

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JODHPUR: 15 मई

1. POLITY AND GOVERNANCE

1.1. UNIFORM CIVIL CODE

Why in the News?

Gujarat became the second Indian state after Uttarakhand to pass a Uniform Civil Code (UCC) Bill.

About Uniform Civil Code (UCC)

- **UCC** aims to replace diverse personal laws governing marriage, divorce, adoption, succession and inheritance with a common, **secular legal framework** to promote equality, national integration, and gender justice.
- **Constitutional provision:** Under **Article 44** under Part IV as **Directive Principles of State Policy (DPSP)** provides that the State shall endeavor to secure for the citizens a uniform civil code throughout the territory of India
- Currently, different **religious communities** in India follow separate personal laws:
 - **Hindu Personal Laws:** For Hindus, Buddhists, Jains, and Sikhs (Hindu Marriage Act, 1955; Hindu Succession Act, 1956, etc.).
 - **Muslim Personal Laws:** The Muslim Personal law (Shariat) Application Act, 1937 regulates matters related to marriage, divorce, inheritance, and maintenance among Muslims.
 - **Christian Personal Laws:** Indian Christian Marriage Act, 1872; The Divorce Act, 1869, etc.
 - **Parsi Personal Laws:** Parsi Marriage and Divorce Act, 1936
- **Special Marriage Act, 1954:** Allows any Indian citizen to marry irrespective of religion, under civil laws, providing an option outside religious laws.
- While the **21st Law Commission** (2018) underlined that UCC is **neither necessary nor desirable at this stage**, **Law Commission of India (2022)** sought public and religious input on UCC.
- Apart from Uttarakhand and Gujarat, Goa also has a form of common civil code in practice i.e. the Portuguese Civil Code of 1867.

Arguments in favour of UCC

- **Upholding Secularism:** It can provide a **common civil law** for all citizens, prioritizing legal uniformity over differentiated rules based on religious practices.
- **Promoting Gender Equality:** It would **address discriminatory practices** against women such as polygamy in Muslim law, unequal succession rights, and inheritance restrictions faced by Parsi women who marry outside their community, etc.
- **Ensuring Equal Status:** By replacing religious practices that contradict fundamental rights, the UCC guarantees equal protection under the law, aligning with **Article 14** of the Constitution.
- **National integration:** Implementing a "**one nation, one law**" approach ensures the state remains neutral in religious matters, preventing religion from hindering legal implementation and uniting the country.
- **International obligation:** India having ratified the **International Covenant on Civil and Political Rights**, 1966, and International Convention on the Elimination of All Forms of Discrimination Against Women (**CEDAW**), 1979, is bound to enforce ensure gender equality under its national law.
- **Accommodating Youth Aspirations:** A majority of the young population supports universal principles of modernity, equality, and humanity, making the UCC aligned with their social attitudes and aspirations for nation-building.

Judicial pronouncements related to UCC

- **Mohd. Ahmed Khan v. Shah Bano Begum Case (1985):** Supreme Court (SC) directed the Parliament to make law related to the Uniform Civil Code.
- **Sarla Mudgal Case Vs. the Union of India (1995):** SC stressed the necessity of UCC for gender equality among religions.
- **John Vallamattom Vs. Union of India (2003):** SC reiterated that UCC would help in establishing national integration by avoiding contradictions on the grounds of ideologies.
- **Shayara Bano v. Union of India (2017):** SC declared the practice of instant triple talaq (talaq-e-biddat) unconstitutional, marking a shift in state action towards protecting women's rights in personal law.

- **Jose Paulo Coutinho v. Maria Luiza Valentina Pereira (2019):** SC cited Goa's Civil Code as a "practical model" of UCC and asserted that a uniform law does not necessarily violate the right to freedom of religion.

Arguments against UCC

- **Threatens Religious Autonomy:** UCC may undermine cultural and religious identities and infringe upon the fundamental right to freedom of religion guaranteed under **Articles 25 and 26** of the Constitution.
- **Impact on marginalized sections:** E.g., Naga minority community expresses dissatisfaction with the proposed UCC, that its enforcement would pose significant threats to Naga culture and dignity.
- **Against Cooperative Federalism:** UCC could encroach upon states' legislative domain, thereby infringing on principles of cooperative federalism.
- **Social Unrest:** Implementation without consensus from diverse communities may lead to social unrest and resistance.
- **Implementation issues:** Its effective enforcement and implementation can be challenging, especially in remote or culturally conservative areas and can also lead to an increase in legal disputes.

Way forward in Implementing UCC in India

- **Need for Public Awareness:** In order to have an informed debate, the government should hold **national consultations** with all the communities of faith.
- **Sectorial Reforms:** Lawmakers can focus on unifying specific areas of law, such as marriage, divorce, and inheritance.
 - E.g., Bring adoption and guardianship under secular frameworks, like the Juvenile Justice (Care and Protection of Children) Act, 2015.
- **International example:** Adopt harmonization model that permits a hybridization of religious and secular laws through incremental reforms.
 - E.g., Indonesia maintains pluralistic legal system, allowing religious laws to apply to Muslims while enforcing a secular civil code for interfaith issues.

Conclusion

A **Uniform Civil Code**, while promising equality, secularism, and national integration, must be implemented gradually and inclusively, balancing constitutional ideals with India's diverse socio-cultural realities to ensure both justice and social harmony.

1.2. FOOD SECTOR REFORMS IN INDIA

Why in the News?

The **Ministry of Health and Family Welfare** recently approved major **regulatory and procedural reforms** in India's food sector from April 1, 2026.

What reforms have been undertaken?

- Government has issued orders to bring **changes in licensing requirements** as per the **Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011**, under the **Food Safety and Standards Act, 2006**.
 - They align with the recommendations of the **NITI Aayog's high-level committee on non-financial regulatory reforms**.
- **Reforms Include:**
 - **FSSAI License requirement:** Introduction of **perpetual validity for FSSAI registrations and licenses**, removing the need for periodic renewals.
 - **Revised turnover thresholds for businesses:**
 - > **Registration:** Businesses with an annual turnover of up to Rs. 1.5 crore (raised from Rs. 12 lakh).
 - > **State License:** Businesses with a turnover between Rs. 1.5 crore and Rs. 50 crore.
 - > **Central License:** Businesses with a turnover above Rs. 50 crore.

- **Street Vendor Licensing:** To eliminate duplicate registrations, **street food vendors who are already registered with municipal corporations or town vending committees** under the Street Vendors Act, 2014, will now be treated as **automatically registered with the FSSAI**.
- **Significance:** These have been introduced to **reduce compliance costs, paperwork, and repeated interactions with licensing authorities** for micro and small businesses.

Food Safety and Standards Authority of India (FSSAI)

- **About:** India's food sector is primarily regulated by the **FSSAI, an independent statutory Authority**, under the **Food Safety and Standards Act, 2006**.
 - The Act **replaced and consolidated eight multi-departmental acts and orders** (such as the Prevention of Food Adulteration Act, 1954, the Fruit Products Order, 1955, and the Meat Food Products Order, 1973).
 - > This created a **single line of command** for all food safety matters in India.
 - Administrative Ministry: Ministry of Health & Family Welfare.
- **Key Responsibilities and Functions of FSSAI**
 - **Licensing & Registration:** Food Business Operators (FBOs) must obtain FSSAI registration or licenses to operate under the **Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011**.
 - **Standards Setting:** Establishing regulations for **food ingredients, additives, and contaminants** based on science.
 - **Quality Control:** Monitoring safety along the supply chain and establishing **standards for packaging and labelling**.
 - > As per the 2011 regulations, it is **mandatory for manufacturers of pre-packaged food** in India to include the **List of ingredients including additives, Nutrition information, Vegetarian/non-vegetarian symbol, Net Quantity, etc.**
 - **Import Regulation:** The **Food Safety and Standards (Import) Regulation, 2017**, mandates that all imported food items comply with Indian standards.
 - > Customs shall not clear food items unless they have at least **60% of shelf life remaining or a minimum of three months before expiry**, whichever is less.
 - **Compliance & Inspection:** Regular checks and audits of food products and manufacturing units are carried out to ensure compliance.
 - **Major Initiatives:** FSSAI is also leading the **Eat Right India** movement to promote sustainable, safe eating habits, and is working on developing **Front-of-Pack Labelling (FOPL)** to combat the rising consumption of ultra-processed foods.

Major issues in India's food sector

- **Adulteration and Contamination:** Food adulteration remains a **severe public health hazard**, with daily essentials like milk, spices, edible oils, and packaged foods frequently being adulterated with **chemical dyes and artificial ripening agents**.
 - Recently, Rajasthan Cooperative Dairy Federation collected 7299 samples, out of which 48.24% of the samples contained water adulteration and 1.41% chemical contamination.
- **Issues with testing:** There are 266 laboratories in the country, many of which **lack facilities to test essential parameters like heavy metal, pesticide and bacterial contamination** (Standing committee report).
- **Surveillance issue:** Parliamentary Committee noted that only 2% of inspections conducted in recent years reported non-compliance, which is considered unrealistically low given the scale of adulteration, suggesting weak surveillance.
- **Poor Coordination:** Insufficient coordination between FSSAI and other departments (such as the Department of Chemicals and Petrochemicals) hampers the implementation of packaging regulations.
- **Vast Unorganized Sector:** A massive portion of India's food production and distribution occurs in the unregulated informal sector, **including street vendors and small-scale businesses**, making it incredibly **difficult to monitor quality and enforce safety standards**.
- **Regulatory Apathy:** Despite having a legal framework, the FSSAI struggles with severe structural failures, including a **massive shortage of Food Safety Officers**.

- **Deceptive Marketing:** The massive health supplement and nutraceutical market often **exploits regulatory loopholes** by making scientifically unsubstantiated claims
 - E.g., "clinically tested," "Ayurvedic," or height-enhancing to mislead consumers.

Conclusion

India's food sector reforms should **balance ease of doing business with effective regulation** by strengthening **enforcement, improving institutional capacity, and formalising** the informal sector. Ensuring food safety through **better standards, traceability, and consumer awareness**, while addressing health concerns from unhealthy diets and misleading marketing, is crucial.

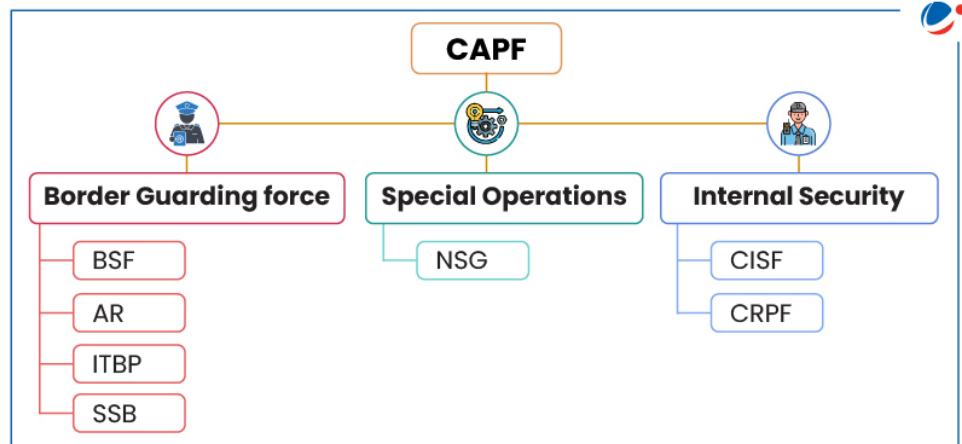
At the same time, growth-oriented initiatives like the **Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)** with a ₹10,900 crore outlay can boost investment, innovation, and overall sectoral development.

1.3. NEWS IN SHORTS

1.3.1. CENTRAL ARMED POLICE FORCES (CAPF) (GENERAL ADMINISTRATION) BILL, 2026

Central Armed Police Forces (CAPF) (general administration) bill, 2026 was passed by both houses of the Parliament.

- The Bill acts as an **overarching law to regulate the recruitment, deputation, promotion, and conditions of service** for officers in the Central Armed Police Forces (CAPFs), which are presently regulated by respective service acts.
- Bill specifically provides for deputation of **IPS (Indian Police Service) Officers** to posts in CAPFs.
 - Earlier, Supreme Court, in 2025, directed **progressive reduction in deputation of IPS Officers in CAPFs** to the posts of DIG (Deputy Inspector General of Police) and IG (Inspector General) within a period of two years.



Key Provisions of the Bill:

- **Powers to make Rules:** It empowers the central government to make Rules on matters related to officers of specified CAPFs.
- **Applicability:** It applies to the five major CAPFs listed in the First Schedule to the Bill including Central Reserve Police Force (CRPF), Border Security Force (BSF), Central Industrial Security Force (CISF), Indo-Tibetan Border Police (ITBP), and Sashastra Seema Bal (SSB).
 - Assam Rifles and National Security Guard (NSG) are not included at present.
 - Central Government may amend the Schedule to make bill applicable for other CAPFs.
- **Positions to be filled by deputation:** The following positions in CAPFs must be filled by deputation of IPS officers:
 - 50% of the posts in the rank of Inspector General
 - a minimum of 67% of the posts in the rank of Additional Director General,
 - all posts in the ranks of Director General and Special Director General.

1.3.2. CONSUMER JUSTICE REPORT 2026

Released by the **India Justice Report**, it aims to assess the capacity and performance of consumer dispute redressal commissions in India.

Key Findings:

- **Rising Pendency:** Despite improved disposal numbers (**88.5% of the 7.64 lakh cases**) post-pandemic, total **case pendency increased by 21%** between 2020 and 2024.
 - This far exceeds the timelines prescribed under the Consumer Protection Act, 2019, which mandates disposal within three to five months.
- **Underutilization of Alternative Redressal:** Across 23 states providing data, only 134 cases were referred to mediation nationwide.
- **Declining Representation of Women:** The share of women among presidents and members in 14 responding **State Consumer Disputes Redressal Commissions (SCDRCs)** declined from an average of 35% in 2021 to 29% in 2025
- **High Vacancies:** As of 2025, nearly **50% of SCDRCs** lacked a sitting president.

Consumer Dispute Redressal Mechanism in India



Consumer Protection Act, 2019 (replaced Consumer Protection Act 1986).



■ **Advisory Council:** Establishment of Consumer Protection Councils at Central, State, and District levels to promote and protect consumer rights.



■ **Three-Tier Redressal System:**

- **National Consumer Disputes Redressal Commission (NCDRC):** For cases above Rs. 2 crore value; hears appeals from State Commissions.

- **State CDRC:** Rs. 50 lakh – Rs. 2 crore.

- **District CDRC:** Cases up to Rs. 50 lakh.



■ **Regulatory Authority:** Established Central Consumer Protection Authority (CCPA) to investigate violations, orders recall of unsafe goods/services, initiates prosecution.



Supreme Court invoked Article 142: Allowed High Courts to hear appeals where commissions are non-functional.

1.3.3. POSTAL BALLOT

The **Election Commission** has extended the facility of **postal ballot voting** to electors **above 85 years of age and Persons with Disabilities**.

About Postal Ballot

- Allows voters to cast their votes on an **electronically received postal ballot**, avoiding the need to visit polling stations physically.
 - The voter must print it, mark their choice manually, and **return it by physical post**.
- **Legal Framework:** Governed by **Conduct of Election Rules, 1961** and **Representation of People Act, 1951**.
- **Eligibility:** Service voters, special voters, absentee voters (seniors above 85, persons with disabilities, etc.) those under preventive detention, and election duty personnel.
 - **Service Voters** include Members of the Armed Forces, central armed police forces, government servants posted abroad etc.
 - **Special voters** include the President, Vice President, Governors, Cabinet Ministers, etc. and their spouses.

1.3.4. MEDIA CERTIFICATION AND MONITORING COMMITTEE (MCMC)

ECI has issued orders require to apply to the **MCMC** for pre-certification of all **political advertisements** on electronic and social media.

About MCMC

- **Created by:** ECI
- **Purpose:** Ensuring compliance with EC guidelines and preventing paid news or misleading content.
 - **Strict vigil on suspected cases of paid news** in the media and take suitable action.

1.3.5. SUJAL GAON ID

Union Minister of Jal Shakti Launched **Sujal Gaon ID**.

About Sujal Gaon ID

- **Launched by:** Ministry of Jal Shakti under Jal Jeevan Mission.
- **Nature:** Unique digital ID for **mapping rural piped water supply schemes**.
- **Purpose:** Enables source-to-tap digital mapping of rural drinking water infrastructure.
- **Platform:** Linked with **Sujalam Bharat national digital architecture**.
- **Significance:** Improves monitoring, transparency, accountability and supports **universal Har Ghar Jal coverage by 2028**.



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Performance and Progress Analysis

2. INTERNATIONAL RELATIONS

2.1.US-IRAN WAR

Why in the News?

US and Israel launched coordinated military strikes on Iran in Operation Epic Fury which led to a prolonged conflict in the West Asian Region.

About the Conflict

- Large-scale US-Israel strikes targeted Iranian military assets and Iran's top leadership, killing Supreme Leader Ayatollah Ali Khamenei.
- Iran retaliated by targeting U.S. military facilities in the West Asian region, Israel, and energy and civilian infrastructure in the Gulf states.

Drivers of Conflict	Nation	Particulars
Geopolitical Interests	Israel	Permanently neutralize Iran's nuclear program and dismantle the "Axis of Resistance" (Iran led militias in Lebanon, Yemen, Iraq, and Syria).
	United States	Maintain regional dominance, regime change and eliminate Iran as a strategic threat to US interests.
Goeconomic Interests	United States	Secure maritime energy flows to Indo-Pacific allies, manage global oil prices, and advance pacts like the Abraham Accords and I2U2.
Nuclear Concerns	US & Israel	Act on assessments that Iran's nuclear and ballistic missile programs are nearing technically irreversible thresholds.
	Iran	Contravened Joint Comprehensive Plan of Action restrictions by significantly boosting uranium enrichment following the US withdrawal from the deal.
Regional Proxies	Iran	Actively funds, arms, and trains regional militant groups (Hamas, Hezbollah, Houthis, and Shiite militias) via the IRGC Quds Force.

Cost of War in Middle East

Category	Impact Area	Key Details
Human Cost	Rising Costs	Higher fuel and freight costs squeeze purchasing power, worsening food insecurity and straining budgets/livelihoods.
	Development Loss	Iran suffers the sharpest HDI decline, losing 1 to 1.5 years of human development progress.
	Poverty	Rising costs risk pushing 8.8 million people across 14 countries (over 5 million in Iran alone) into poverty.
	Livelihoods	Gulf labor disruptions trigger immediate employment and income shocks for migrant workers and their families.
	Air Pollution	Bombed refineries (Tehran, Aghdesieh, Shahrn, Karaj) released toxic hydrocarbons, sulfur/nitrogen compounds, heavy metals, and PFAS, creating a toxic legacy.
	Health Crisis	Toxic exposure causes preterm births, low birth weights, and impaired lung growth, especially in pregnant women and children.

Environmental Cost	Water Crisis	Damage in water-stressed Iran risks systemic collapse, worsening unemployment, displacement, weak governance, and food price volatility.
	Pollution	Bombed oil, chemical, and weapon sites leave toxic residues in soil and cross-border waterways.
Economic Cost	Goeconomic Risk	WEF's 2026 Global Risks Report ranks armed conflicts as major factor reshaping global markets, supply chains, and geopolitics.
	Port Congestion	The Strait of Hormuz closure forced longer shipping routes and caused massive global port congestion.
	Stagflation	Strikes on Iranian energy hubs (Kharg Island, South Pars) pushed Brent crude past \$110/barrel. Middle East shipping insurance spiked 50%, driving permanent global inflation.
	Logistics	War-driven shipping and insurance surcharges are rippling globally (e.g., from Taiwanese fabs to Brazilian farms and South Korean steel mills).
	Supply Chains	The conflict cut ~33% of the global helium supply, critically disrupting semiconductors, medical imaging, and high-tech sectors.
	Sovereign Debt	Record-high developed-nation debt could worsen with monetary tightening; Asian economies (Indonesia, Malaysia, Thailand) face widening fiscal deficits.
Food Security	Input Costs	In the past month, urea fertilizer prices jumped ~30%, and soybean oil hit a two-year high.
	Fertilizer Constraints	Fertilizer imports coming from the Middle East, energy disruptions directly hit agricultural supply chains.

International Conventions/Treaties/Resolutions governing the issues emerging from the conflict



UN SECURITY COUNCIL (UNSC)

UNSC adopted **resolution 2817 (2026)** condemning iran's attacks against several gulf states and jordan and demanding cessation. Stop breaches of International law.

UNSC resolution 2817 invoked **Article 51** of the UN Charter, affirming the "**inherent right of individual or collective self-defence**" in response to armed attacks by iran.



UN CHARTER

UN charter addresses the use of force in international waters and its article 51 allows UN members to exercise their right to **self-defence** in the event of an armed attack.



UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)

UNCLOS part iii establishes **transit passage** through straits used for international navigation.

Emphasising that **transit passage shall not be impeded** that there shall be **no suspension of transit passage**.

Impact on India

- **Energy Imports:** ~50% of India's oil (2.5–2.7 million bpd) transits the Strait of Hormuz. Every \$1/barrel price increase adds \$1.8–\$2 billion to India's annual import bill.
- **Gas Reliance:** The Strait handles 80–85% of India's LPG and 60% of its LNG imports.
- **Agriculture:** Global fertilizer prices surged 40% due to the rising cost of natural gas, which accounts for 70% of urea and ammonia production costs.
 - India's urea subsidy budget sits at ~\$12.7 billion this fiscal year, creating a massive public expense.

- **Geopolitics:** The conflict functionally paralyzed the India-Middle East-Europe Economic Corridor (IMEEC) and complicates broader connectivity plans with Iran and Central Asia.
- **Security Limitations:** India's need to balance diplomatic relations has exposed the limitations of its naval role as a regional security provider in the Indian Ocean.
- **Diaspora Safety:** The security of approximately 10 million Indian nationals living and working in the Gulf is a paramount national concern.

India's Measures

- **Evacuation:** India executed rapid, large-scale evacuation protocols utilizing civil aviation assets and with help from countries like Armenia and Azerbaijan.
- **Supply Chain Diversification:** Union Government established seven inter-ministerial empowered groups functioning as rapid-response teams.
 - **Oil and Gas:** The government is rigorously managing its strategic petroleum reserves and is actively sourcing additional **Regasified LNG (RLNG)** from spot markets to maintain pipeline hydraulics for prioritized domestic consumers.
- **Agriculture:** Department of Fertilizers initiated **emergency global procurement protocols** and India is proactively diversifying its sourcing to Russia, Morocco, Australia, Canada, Indonesia, and Egypt.
- **Diplomatic Channels:** Prime Minister has engaged directly with leadership across West Asia.
- **Economic Stabilization Fund:** Government has proposed the creation of an INR ₹573 billion (USD \$6.20 billion) economic stabilization fund to manage external shocks and supply chain disruptions.

Conclusion

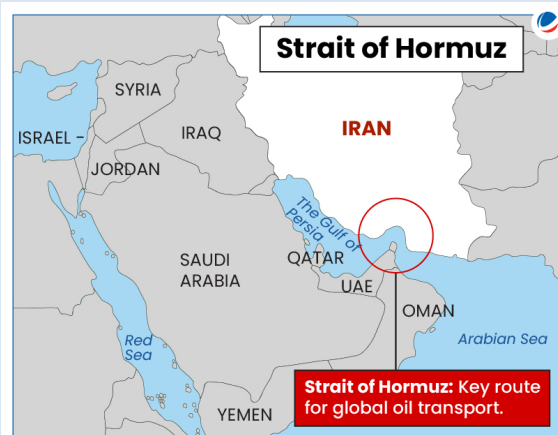
Driven by geopolitical and nuclear anxieties, the conflict has escalated into a regional war that weaponized chokepoints like the Strait of Hormuz and exposed the severe fragility of global supply chains. For India, these vulnerabilities demand a long-term strategic reassessment requiring India to accelerate its green energy transition, permanently diversify critical supply chains beyond the volatile Persian Gulf.

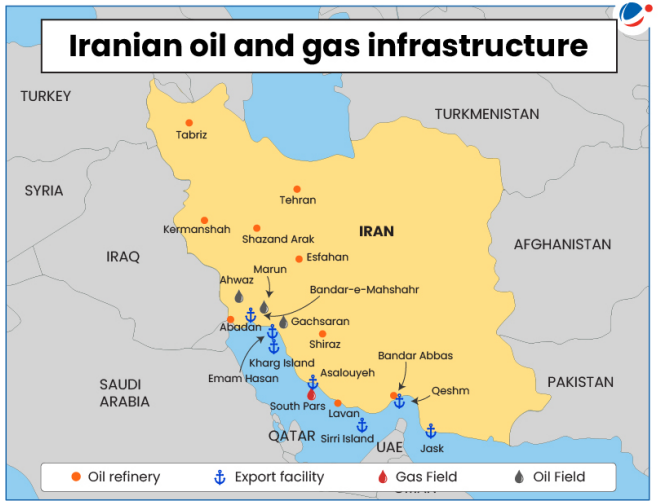


Read our Weekly Focus coverage on Age of War

2.1.1. STRATEGIC LOCATIONS AFFECTED BY CONFLICT

Locations	Geopolitical and Strategic Significance
Strait of Hormuz	• Strait is located between Iran and Oman and it links the Persian Gulf to the Gulf of Oman and the Arabian Sea. • Iran effectively closed Strait of Hormuz causing global energy shock. • International Energy Agency (IEA) estimates nearly 15 million barrels/day of crude oil passed through the Strait (around 34% of global crude oil trade), with most exports bound for Asia. • Also, the Strait handles approximately one-fifth of global liquid petroleum consumption and global LNG trade.



Iran's Energy Hubs	- Export facilities in Kharg Island (export hub for 90% of Iranian crude) - Oil production facilities in Khuzestan - Gas field in Bushehr and world's largest gas field in South Pars.	 Iranian oil and gas infrastructure
Fujairah Port	A critical maritime and energy hub situated in the UAE, geographically located just outside the Strait of Hormuz on the Gulf of Oman, allowing the UAE to bypass the strait for oil exports.	
Iran Nuclear Sites	Fortified facilities including Natanz, Fordow, and Isfahan, targeted to prevent nuclear weaponization.	
Iran Ports and Military Bases	Bandar Abbas Port, Hamadan Airbase, Tabriz Airport, and Parchin military installations	
Regional US Military Bases	Qatar: Al Udeid Air Base (Largest US Base in Middle East), Ras Laffan Industrial City Bahrain: U.S. Fifth Fleet headquarters in the Juffair area of Manama Kuwait: Camp Arifjan, Ali Al Salem Airbase UAE: Al Dhafra Air Base, Dubai's Jebel Ali Port (US Navy's largest port of call in Middle East) Iraq: Erbil International Airport and Ain al-Asad. Jordan: Muwaffaq Salti Air Base Saudi Arabia: Prince Sultan Air Base	 Middle East
Red Sea	- Red Sea is a narrow inlet of Indian Ocean between Africa and Asia, connecting to the Mediterranean Sea via the Suez Canal. - Red Sea connects to the ocean through Bab-el-Mandeb Strait and Gulf of Aden. - Red Sea is a major global shipping route, transporting 12% of world trade.	
Caspian Sea	- Israel attacked Caspian Sea as it is a key Iran-Russia supply route. - A landlocked body of water bordering northern Iran, traditionally considered a secure rear area far from the primary theaters of the Persian Gulf.	

2.2. ENERGY SECURITY AND INDIA'S FOREIGN POLICY

Why in the News?

US-Israeli strikes on Iran have escalated into **wider regional confrontation** with direct implications for **global energy markets** calling for **Energy Security** imperative in **India's Foreign Policy**.

Recent Developments Mandating Energy Security for India

- **Military Offensive creating Instability in Middle East:** Iranian retaliation targeting US assets and Gulf infrastructure, alongside threats to commercial vessels has risked disruption of flows through **Strait of Hormuz**.
- **Rising Oil Inflation:** Global oil prices **surged more than 40-50%** amid fears of supply disruptions in West Asia in recent times.
- **Shift from Geopolitics to Geo-Economics:** Due to several factors like trade war, bilateral dispute, political turmoil, and territorial dispute.
 - E.g. Russia-Ukraine War; USA's unilateral imposition of tariffs, etc.

Need for realigning India's Foreign Policy towards Energy Security

- **Geographically-Concentrated Import Dependency:** India imports **over 85% of its crude oil**, around **50% of natural gas**, and nearly **25% of its coal**.
 - This import dependence remains **geographically concentrated**, with large share of supplies **sourced from Gulf producers**.
- **Supply Chain Disruption due to choke points:** E.g., roughly **half of India's crude oil imports** and over **60% of its LNG and LPG shipments** transit the **Strait of Hormuz**.
- **Vulnerability of Gas-linked systems:** Unlike crude oil where India **diversified suppliers and built strategic petroleum reserves**, **gas-linked systems** operate with less cushioning and limited buffers.
 - LNG depends on **specialised cryogenic infrastructure** and is **generally held only in small operational volumes**.
- **Intertwined Nature of Energy:** LPG disruptions translate into **fiscal and political tensions** feeding **directly into fertilizer prices** and **indirectly increasing food inflation** impacting **household consumption and food systems**.
- **Energy accessibility:** Rural areas with **more than 65% of population** often face challenges in **accessing reliable electricity and clean cooking fuel** creating **equity, inclusion, and public health concerns**.
- **Rising energy Demand:** India's primary energy consumption is expected to increase from about **775 million tonnes of oil equivalent (Mtoe)** in 2013 to about 1250 Mtoe (estimated by International Energy Agency) in 2030 driven by industrialization, urbanization, and a growing middle class.

India's foreign policy initiatives for Energy Security

- **Leadership at Global Forums:** Through India-led initiatives like Biofuel Alliance at the G20 summit and the International Solar Alliance (ISA); One Sun One World One Grid, etc.
- **Diversification of suppliers:** India increased its crude oil suppliers from 27 countries in 2006-07 to around 40 countries currently.
- **Efforts towards Strategic Autonomy:** India continues a "national interest first" policy, balancing its energy imports between Russia, the Middle East, and the USA.
 - E.g., in recent years India navigated complex sanctions by increasing U.S. oil imports while maintaining significant trade with Russia.
- **Long-term investment partnerships:** E.g., HPCL's 10-year LNG agreement with **ADNOC (UAE)** ensures a stable gas supply despite regional volatility.
- **Increasing Exploration & Production footprint:** Indian PSUs (ONGC Videsh Ltd (OVL), Indian Oil Corporation Ltd (IOCL), Oil India Ltd (OIL), etc. have **48 assets in 22 countries**.
- **South Asian Power Grid:** India is nearshoring energy supplies along with pursuing **Neighbourhood First Policy** by building energy infrastructure in South Asia in countries like Bangladesh, Bhutan, Nepal, Sri Lanka, etc.

- **Maritime safety:** India has taken several steps to enhance maritime awareness and safety of Indian ships at chokepoints like round-the-clock monitoring through **Mercantile Marine Domain Awareness Centre (MMDAC)**, real-time incident tracking and close coordination with the Indian Navy and other agencies.
- **Other steps:**
 - **Alternate energy sources:** Through initiatives like National Green Hydrogen Mission, National Bioenergy Programme, etc. India aims to enhance its renewable energy capacity.
 - **Strategic Petroleum Reserves (SPR):** Phase II of the SPR program is fast-tracking underground facilities at Chandikhol (Odisha) and Padur (Karnataka).

Conclusion

India's foreign policy is guided by strategic autonomy, balanced partnerships, and cautious neutrality. It focuses on diversifying energy ties and strengthening regional connectivity to reduce risks. This approach helps India protect its economic and strategic interests in an uncertain global environment.



Read our Weekly Focus coverage on India's Energy Security

2.3. AFGHANISTAN-PAKISTAN CONFLICT

Why in the News?

Recently, Pakistan-Afghanistan have been in a **state of open war** causing continuous deterioration in relations.

Background

- Between 2021 and 2025, **Tehrik-e-Taliban Pakistan (TTP)**, also known as Pakistani Taliban, an ideological offshoot of Afghan Taliban, carried out a number of attacks in Pakistan.
 - **TTP** emerged in 2007 and is distinct from Afghanistan Taliban but shares a **deep ideological, social and linguistic ties** with Taliban.
- Pakistan launched **Operation 'Ghazab Lil-Haq'** and Afghanistan launched operation **'Radd al-Zulm'** in response to artillery fire, ground-level attacks, air and drone strikes, targeting critical military infrastructure.
- **Qatar and Turkey** helped broker a **temporary peace** between the **Taliban and Pakistani** governments, but later negotiations mediated by **Saudi Arabia dissolved toward the end of 2025**.
- **India's response: Condemned air strikes by Pakistan in Afghanistan's territory** causing loss of lives and civilian infrastructure reiterating **support for Afghanistan's sovereignty and territorial integrity**.

Key Reasons for the Afghanistan-Pakistan Conflict

- **Issue of TTP:** Since returning to power in 2021, Taliban faced **repeated accusations for harbouring TTP militants on Afghan soil** which Afghanistan denies.
- **Unresolved Border Dispute concerning Durand Line:** It is 2,600-kilometre boundary drawn in **1893 between British India and Afghanistan**, that Afghanistan sees as an imposed colonial demarcation while Pakistan recognizes as its **sovereign boundary**.
- **Pashtun Nationalism:** Afghanistan demanded creation of Pashtun state that would link **Pashtun tribes living in Afghanistan** with those in **North-West Frontier Province (NWFP) and Baluchistan**.
 - For Pakistan, Afghanistan claims were **clearly unacceptable** and amounted to demanding greater part of Pakistan's territory.



Implications of the Conflict

- **Shifting Power Dynamics:** Internal divisions within Taliban and their conflicts with Pakistan could influence their stance toward India, impacting India's long-term strategic interests in the country.
- **Security Threats to South Asia:** Given the history of **cross-border terrorism** linked to Pakistan, the conflict increases **risk of cross-border militancy and proxy rivalries** for India.
 - Also, Pakistan is a **nuclear powered state** with both China and Russia being its major defence partners raises concerns about nuclear proliferation.
- **Further deterioration in India- Pakistan relations:** Indian influence in Kabul is perceived as an attempt to “encircle” Pakistan and a threat.
- **Other concerns:** Adverse impact on **Regional Trade and Connectivity Projects**; Rise in refugees; etc.

Way forward for India

- **Leverage soft-power diplomacy:** India has long standing **humanitarian and infrastructural** presence in Afghanistan to address security concerns.
 - E.g. India has strong presence through humanitarian projects like maintaining Salma Dam (Afghan-India Friendship Dam).
- **Strengthen intelligence gathering:** India needs to periodically examine scope of its engagement based on **actionable intelligence** and **evolving geopolitical** to shield itself from radicalisation spillovers or entanglement in proxy rivalries within its neighbourhood.
- **Realpolitik Approach:** Continued engagement with Taliban leaders for safeguarding national interests in **preventing radicalisation or terrorism spillover from western front**.
- **Connectivity Initiatives:** Through closer engagement with Taliban, India can **resume and expand India-Afghan Air Freight corridor** and **Chabahar Port Project**.
- **New alignments:** As divergences between old allies (Afghan Taliban and Pakistan) and convergences between new partners (India and Afghan Taliban) require countries to **realign their posture with both Pakistan and Afghanistan**.

Conclusion

India must strengthen its **intelligence gathering** and response mechanisms to **expand its regional strategic footprint**, **benefit from connectivity projects** through Afghanistan, and shield itself from **radicalisation spillovers or entanglement in proxy rivalries**.

2.4. INDIA-CANADA RELATIONS

Why in the News?

The Prime Minister of Canada visited India to strengthen bilateral relations and enhance cooperation in key areas.

Key outcomes of the visit

- **Comprehensive Economic Partnership Agreement (CEPA) Negotiations:** Signed the **Terms of Reference (ToR)** for CEPA, initiating negotiations for a comprehensive trade agreement to boost bilateral trade to \$50 billion by 2030.
- **Nuclear Energy:** Agreement between India's Department of Atomic Energy and Cameco worth about **\$2.6 billion for supply of uranium ore concentrates (2027–2035)** to fuel India's nuclear reactors.
- **Critical Minerals:** India–Canada MoU to build secure supply chains; focus on **investment, technology sharing and cooperation in mining & processing**.



- **Renewable Energy:** MoU to enhance cooperation in **solar, wind, biomass & energy storage**; includes knowledge sharing and capacity building.
- **Multilateral:** Canada to join **Global Biofuels Alliance & International Solar Alliance**; India supports its entry into the Indian Ocean Rim Association (IORA) as a Dialogue Partner.
- **Declaration of Intent on Joint Pulse Protein Centre of Excellence:** At National Institute of Food Technology, Entrepreneurship, and Management, Kundli (NIFTEM-K)
- **Institutional:** Establishment of **India-Canada Defence Dialogue** and Parliamentary Friendship Group.
- **Others:** Trilateral cooperation (India–Canada–Australia), All India Council for Technical Education (AICTE)–Mitacs partnership, and declaration of intent for Joint Pulse Protein Centre **of Excellence** at National Institute of Food Technology, Entrepreneurship, and Management, Kundli.

Significance of Uranium Deal with Canda

- **Energy Security & Nuclear Expansion:** Ensures reliable uranium supply for nuclear reactors, supporting India's target of **100 GW nuclear capacity by 2047**
- **Import Dependence:** Addresses ~70% uranium import reliance due to low-grade domestic ore
 - Indian ore is 'low grade' (0.02-0.45% concentration). Canada however has high-grade ore (10-100x richer than Indian ore).
 - **Importing uranium ore** is cheaper than extracting it for India.
- **Supply Diversification:** Expands sourcing beyond Kazakhstan, Russia, and Uzbekistan.
- **Strategic Partnership:** Strengthens ties with Canada and signals diplomatic normalisation.
- The deal with Cameco comes under the **India-Canada Civil Nuclear Cooperation Agreement (2010)**.
 - **Peaceful Use & Accountability Provisions:** India ensures that all Canadian nuclear material is used strictly for **peaceful, non-explosive purposes**, while maintaining **fissionable material accounts (tracking/ ledger)**.
- **IAEA Safeguards:** The agreement operates under IAEA safeguards, under which imported uranium is placed under IAEA monitoring
 - **General Principle:** In India, reactors using **imported uranium are under IAEA safeguards**, while those using **domestic uranium remain outside safeguards**.

Significance of India-Canada Relations

- **Economic and strategic Engagement:** Expanding trade ties, with bilateral trade around USD 8.66 billion(2024-2025), indicating significant untapped potential.
 - The two nations share over 75 years of diplomatic relations, which were formally upgraded to a **"Strategic Partnership" in 2018**.
- **Energy Partnership:** Cooperation in **uranium, LNG, and critical minerals** supporting India's long-term energy security
- **Diaspora Linkages:** Presence of **around 1.8 million Indo-Canadians** acting as a strong socio-cultural and economic bridge.
 - **Education & Mobility:** Canada hosts **around 4 lakh Indian students**, strengthening human capital and people-to-people ties.
- **Agriculture & Food Security:** Canada's supply of **pulses and fertilisers** is crucial for India's food security and farm sector, e.g., **Canada is the world's largest producer of Potash**.
- **Strategic Convergence:** Both countries support a rules-based order in the Indo-Pacific, collaboration in climate initiatives and multilateral forums reflecting shared global interests, e.g., cooperation **under G20, Canada's Indo-Pacific strategy, etc.**

Issues in India-Canada Relations

- **Khalistan Extremism:** Presence of pro-Khalistan groups in Canada and incidents targeting Indian diaspora, consulates, and temples. E.g., **Babbar Khalsa International (BKI)**
- **Nijjar Issue (2023):** Allegations surrounding the **killing of Hardeep Singh Nijjar** led to a serious diplomatic crisis and a deep trust deficit.

- **Diplomatic Strain:** Expulsion of diplomats, suspension of visa services, and disruption of institutional dialogue mechanisms
- **Statement on internal matters:** e.g., Canadian statements on farm protests and minority issues in India
- **Immigration & Mobility Issues:** Decline in Indian **students and tightening visa norms** have affected people-to-people ties and educational exchanges

Conclusion

India and Canada can pursue a calibrated and pragmatic approach by addressing security concerns and respecting mutual sensitivities. Strengthening cooperation in trade, energy, and technology, along with leveraging diaspora linkages, can facilitate trust-building and enhance the overall bilateral partnership.

2.5. NEWS IN SHORTS

2.5.1. PARA-DIPLOMACY

Recently, the official overseas visit of Uttar Pradesh Chief Minister to Singapore and Japan to attract investment and strengthen economic partnerships highlights the growing role of Para-diplomacy in India.

About Para-diplomacy

- Para-diplomacy allows **states (sub-national units)** to engage with foreign countries or regions to pursue their own interests.
- The Ministry of External Affairs created a **States Division** in 2014. It helps states promote exports, tourism, and attract foreign investment.

Significance

- **Attracting Investment:** Investment summits organised by various states like **Vibrant Gujarat, Progressive Punjab** and **Vibrant Goa**.
- **Cultural Diplomacy:** Kerala uses diaspora links with Gulf countries.
- **Contribution to National Foreign Policy:** Establishment of a **Green Hydrogen Centre of Excellence** by the collaboration of IIT Kanpur and IIT BHU with Japanese institutions.
- **Regional Development:** Emergence of Bengaluru as global technology hub, while Chennai and Hyderabad emerged in IT and Manufacturing.

Issues

- **Federal Concerns:** Foreign affairs fall under the **Union List (Item 10)**. States must not exceed their powers in engaging with foreign governments and delegates.
- **Neighbour Relations Impact:** State actions can affect international ties especially in sensitive areas.
 - **Example:** Tamil Nadu (Sri Lanka), West Bengal (Bangladesh).

Thus, Para-diplomacy strengthens economic and cultural links, but must fully align with national foreign policy.

2.5.2. CONFLICT AREAS IN NEWS

The IAEA urged “maximum restraint” after a reported Iranian missile strike near Dimona, Israel's nuclear facility.

- **Dimona** is a southern town hosting Israel's nuclear facility, in the Negev desert.

Other Conflict areas in News

- **Natanz nuclear enrichment facility:** It is an Iranian facility.
- **South Pars gas field:** Part of the world's largest natural gas field shared between Iran and Qatar.
- **Litani River:** Crossing was destroyed on the Litani river by Israel in southern Lebanon that was reportedly being used by Hezbollah.
- **Tyre city:** Coastal city in southern Lebanon, a UNESCO World Heritage site.

- **Ras Laffan Industrial City:** Qatar's main gas facility came under attack recently.

2.5.3. PANAMA CANAL

Panama Canal is functioning at top capacity as Iran war triggers more LNG vessel traffic.

Panama Canal

- It is an **artificial interoceanic waterway** which uses a **system of locks** that function as **water elevators**, raising and lowering the ships.
- **Location:** Isthmus of Panama, Central America
- **Connects:** Atlantic Ocean (Caribbean Sea) and Pacific Ocean
- **Length:** ~82 km
- **Operational Since:** 1914
- **Strategic Importance:** Shortens global trade routes (~8,000 nautical miles)



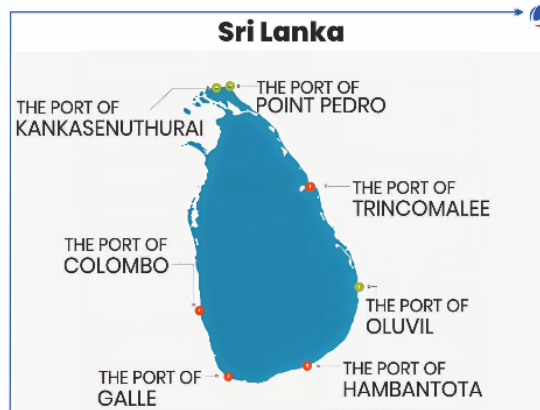
2.5.4. TRINCOMALEE PROJECT

Sri Lanka looks to develop India-backed Trincomalee project amid energy crisis.

- **Trincomalee** is a **natural harbour** on the **north-eastern coast of Sri Lanka**; it is the **second best natural harbour in the world**.

About Trincomalee project

- In **2022**, India-Sri Lanka signed an agreement for joint development of **Trincomalee Oil Tank Farm**.
 - The Oil Farm was built in **1930s** by **British** to supply fuel to the Navy during **Second World War**.
- **Objective:** Enhance petroleum storage capacity and energy security.
- **Strategic and Commercial Role:** Located near key Indian Ocean sea lanes; Aligns with India's MAHASAGAR and Neighbourhood First policy.



2.5.5. INDIA-JAPAN BILATERAL SWAP ARRANGEMENT

India has renewed its Bilateral Swap Arrangement BSA (Currency Swap Arrangement) with Japan with effect from 28th February, 2026.

- **The BSA** is a two-way arrangement where both authorities can swap their local currencies in exchange for the US Dollar.
 - **A currency swap** is a broader term defined as an agreement between two central banks to exchange a cash flow in one currency against a cash flow in another currency according to predetermined conditions.
- **The size of the India-Japan BSA:** Remains unchanged at 75 billion US Dollars.
- **Other CSAs by India:** SAARC CSA (2024-27), India-UAE CSA, India-Sri Lanka CSA, etc.



2.5.6. IOS SAGAR

The Indian Navy organised the second edition of the Indian Ocean Ship (IOS) SAGAR initiative

About IOS SAGAR

- **Aim:** Enables naval personnel from friendly foreign countries to train and sail together onboard an Indian Naval ship increasing interoperability.
- **Participation:** 16 Indian Ocean Naval Symposium (IONS) countries.
- It is aligned with India's vision of **Security and Growth for All in the Region (SAGAR)**.
 - It also contributes to the broader **MAHASAGAR framework (Mutual and Holistic Advancement for Security Across the Regions)**.



2.5.7. GLOBE NETWORK

India hosted the 12th Steering Committee Meeting of Global Operational Network of Anti-Corruption Law Enforcement Authorities (**GlobE Network**).



GlobE Network



Genesis: Established in 2021, based on **Riyadh Initiative** launched during Saudi Arabia's G20 Presidency (2020).



About: Global platform of **specialised anti-corruption law enforcement authorities**.



Aim: Transnational cooperation world-wide to detect, investigate and prosecute corruption cases.



Membership: Open to anti-corruption law enforcement authorities of all UN Member States and States parties to UN Convention against Corruption (UNCAC).

- India's **Central Bureau of Investigation (CBI)** and **Directorate of Enforcement (ED)** are its members.

- **Supported by:** UN Office on Drugs and Crime (UNODC), which provides its secretariat.
- **GlobE Secure Communications Platform (SCP):** Provides practical support to investigators and prosecutors for swift, secure exchange of information etc.

2.5.8. RAISINA DIALOGUE

The 11th edition of the Raisina Dialogue is held in India.

- **Theme of the 2026 edition:** "Saṃskāra – Assertion, Accommodation, Advancement".
- As part of Raisina Dialogue, inaugural edition of the **Raisina Science Diplomacy Initiative (SDI)** was launched.

About Raisina Dialogue

- It is India's premier conference on **geopolitics and geoeconomics** held annually in New Delhi since **2016**.
- **Organized by** the Observer Research Foundation in partnership with the Ministry of External Affairs.
- **Raisina Platforms & Ideas Forum (RPIF)** is the entity that administers and manages the Raisina Dialogue.

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3. ECONOMY

3.1. BHARAT AUDYOGIK VIKAS YOJNA (BHAVYA)

Why in the News

The Union Cabinet approved Bharat Audyogik Vikas Yojna (BHAVYA) to develop 100 plug-and-play industrial parks with an allocation of 33,660 crore rupees.

Key Highlights of the Scheme

- **Nodal Ministry:** Ministry of Commerce & Industry.
- **Objective:** It aims to develop 100 investment-ready plug-and-play industrial parks (**100–1000 acres**) in and near cities, in partnership with States, Central Public Sector Undertakings and private sector.
- **Duration:** The scheme will be operational for a **period of six (6) years commencing from financial year 2026-27 up to 2031-32**, with an **outlay of ₹ 33,660 crores**.
- **Implementation Mechanism:** Implemented by **National Industrial Corridor Development Corporation (NICDC)** under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry in partnership with **States and private sector**.
- **Mode of Implementation:**
 - The State/UT government or the Central PSU shall be the **sponsoring agency**.
 - The **development of the park shall be carried out by a Special Purpose Vehicle (SPV)** formed between National Industrial Corridor Development and Implementation Trust (NICDIT) under DPIIT and the state nodal agency.
 - > The **SPV shall be the owner of assets created under the scheme**, and shall be responsible for **planning, construction, operation and maintenance of the industrial park** to be developed.
- **Financial support:** Up to ₹1 crore per acre will be available for eligible projects, while parks developed in partnership with private developers will receive support of up to ₹50 lakh per acre or 50% of infrastructure cost, whichever is lower. Financial support is provided for
 - **Core infrastructure** (roads, utilities, drainage, ICT)
 - **Value-added infrastructure** (factory sheds, labs, warehousing)
 - **Social infrastructure** (worker housing, amenities)
 - **Additional support:** Up to **25% of project cost** for external infrastructure (connectivity and integration with existing networks)
- **Beneficiaries:**
 - **Primary:** Manufacturing units, MSMEs, startups, investors
 - **Secondary:** Workers, logistics providers, service sector, local communities

Significance

- **Sustainable and Future-Ready Industrial Park Design**
 - **Green energy and sustainable resource use** with integrated underground utility corridors enabling a no-dig environment for efficient maintenance and uninterrupted industrial operations.
 - Alignment with **PM GatiShakti** for multimodal connectivity
- **Ease of Doing Business:** With pre-approved land, ready infrastructure, single window system and investor-friendly reforms led by states.
 - BHAVYA will significantly reduce entry barriers for investors.
- **Employment Generation:** Creating lakhs of direct and indirect employment across manufacturing, logistics and services
- **Regional Industrial Growth:** Through **cluster-based development** and enabling co-location of industries, suppliers and service providers



Read our previous
coverage on **Ease of
Doing Business in
India**

Conclusion

The approval of BHAVYA represents a transformational step in India's journey towards Atmanirbhar Bharat, reinforcing the country's manufacturing capabilities, boosting exports and laying the foundation for a resilient, inclusive and globally competitive economy.

3.2. DIGITAL PUBLIC INFRASTRUCTURE

Why in the News?

India is sharing its Digital Public Infrastructure model globally, enabling countries to adopt scalable, inclusive, and interoperable digital governance systems.

More in the News

- As of February 2026, Government of India has signed Memoranda of Understanding (MoU) and agreements with **24 countries** for cooperation on India Stack and Digital Public Infrastructure.
 - Areas of cooperation include digital identity, digital payments, data exchange frameworks and service delivery systems.
- UPI is now live in **8 countries** including the United Arab Emirates, Singapore, Bhutan, Nepal, Sri Lanka, France, Mauritius and Qatar.
- During its G20 Presidency in 2023, India placed DPI at the centre of the development agenda.
- More than 25 nations are adopting or exploring the **Modular Open-Source Identity Platform (MOSIP)** for their national identity programmes.

Digital Public Goods (DPGs)

- Digital public goods are open-source software, open standards, open data, open AI systems and open content collections that adhere to privacy and other applicable best practices
- DPGs often act as the **modular building blocks or open-source solutions that help operationalize DPIs**, but they are not the broad digital infrastructures themselves.
- Example: **Bhashini** (an AI-led language translation platform)

What is Digital Public Infrastructure?

- Definition:** Digital Public Infrastructure (DPI) refers to a set of secure and interoperable digital systems designed to be open, inclusive and accessible to support the delivery of public and private services to individuals and organizations.
- Features:** It functions as an **intermediate layer** in the digital ecosystem between the **physical infrastructure** (internet connectivity, devices, servers, data centres, cloud systems and routers) and the **sectoral applications** (information systems, e-commerce, social protection, remote education and telehealth).
- India's DPI emerged through a phased and deliberate process through **concept of JAM (Jan Dhan, Aadhar, Mobile) Trinity**, linking identity, finance and connectivity at unprecedented scale.
- India's DPI follows a **co-creation model**. The co-creation model has provided a fertile ground for private sector participation.

Significance of Digital Public Infrastructure

- Shift to Digital Infrastructure:** Infrastructure has evolved beyond physical assets like roads and ports to include digital systems forming the backbone of modern societies.
- Seamless Interactions:** DPI enables secure and seamless interaction among individuals, businesses and governments.
 - MyGov App**, streamline access to government services, thus cutting down administrative overheads.

Co-creation model	
Role	Entities Involved
 Governance	Government of India (MeitY, RBI, NPCI, UIDAI, etc.)
 Infrastructure	Public institutions (e.g., NPCI, DigiLocker), open protocols
 Service Delivery	FinTechs, banks, startups, state governments, etc.
 Development	Collaboration with industry bodies, open-source communities (e.g., iSPIRT)

- **Transparency and Accountability:** DPI enhances transparency by providing real-time access to information, eliminating bureaucratic red tape, and reducing human discretion in decision-making.
 - E.g. Public Financial Management System (**PFMS**) allows real-time tracking of government funds.
- **Financial Inclusion and Access:** DPI enhances financial inclusion by providing access to banking and financial services in remote areas
- **Expanding Access and Rights:** DPI now determines access to markets and rights in the digital economy. Eg. Open Network for Digital Commerce (**ONDC**)
- **Strengthening State Capacity:** It improves governance through efficient subsidy delivery, secure banking systems etc. Eg. Aadhar Enabled Payment System (**AePS**)
- **Enhancing Economic Opportunities:** Eg. Government e-Marketplace (**GeM**)



Read our previous coverage on DPDP Act, 2023

India's DPI Stack Across Different Sectors



Digital Economic Infrastructure

- **Unified Payments Interface (UPI):** World's largest real-time retail payment enabling instant, interoperable, and secure transactions.
- **Public Financial Management System (PFMS):** Online platform for end-to-end tracking of government funds and direct benefit transfers.
- **Government & Marketplace (GeM):** Transparent e-procurement portal for efficient government purchasing.



Citizen Service Delivery Platforms

- **DigiLocker:** Secure storage and sharing of authenticated digital documents.
- **Unified Mobile Application for New age Governance (UMANG):** Unified platform providing access to multiple government services.



Health & Nutrition Ecosystem

- **eSanjeevani:** Telemedicine services improving rural healthcare access.
- **POSHAN Tracker:** Real-time tracking of child nutrition indicators.



Education and Skilling

- **DIKSHA:** Digital learning content and teacher training platform.
- **Skill India Digital Hub:** Integrates skilling, certification, and job discovery.



Governance Capacity & Coordination

- **e-Office:** Enables paperless administration.
- **API Setu:** It enables secure and standardised sharing of government data and services through application programming interfaces.
- **PM GatiShakti:** GIS-based infrastructure planning platform.

Challenges associated with DPI

- **Data breaches and ransomware:** The massive scale of India's DPI makes it a prime target for cyberattacks, and the integration of Aadhaar across multiple government services has created cascading privacy risks through dangerous "linkage attacks".
- **Data Governance Trade-offs:** There is an inherent tension between protecting individual privacy and fostering continuous innovation.

- The 2023 Digital Personal Data Protection (DPDP) Act mandates strict standards for privacy, explicit consent, and data localisation, creating a key challenge in balancing regulatory compliance with the seamless accessibility of DPIs.
- **AI-powered threats:** Malicious actors and state-sponsored groups can use artificial intelligence to launch adaptive, targeted attacks on critical infrastructure, creating the potential for cascading failures across systems.
- **The digital divide:** Despite widespread adoption, DPI success is hindered by an ongoing digital divide especially in rural areas.
- **Technical reliability:** Platforms like UPI still face persistent infrastructural gaps, including poor rural penetration, bank server outages and network failures.
- **Algorithmic bias:** DPIs excessive reliance on AI could result in algorithmic bias which can perpetuate inequalities across India's highly diverse population, varying economic strata and differing digital literacy levels.

Way Forward

- **Preserving Digital Sovereignty:** As India's DPI models are adopted by other countries through initiatives like MOSIP, it should be emphasized that the DPI ensures data sovereignty within those countries' boundaries and are not locked-in to Indian systems and data registries.
- **Integrating Samaj, Sarkar, and Bazaar:** DPI must be designed to serve all three, balancing their interests and fostering collaboration.
- **Focus on outcomes over technology:** The design of DPI should be driven by real-world use cases and thorough needs assessments to ensure the technology actually solves specific problems for people and firms.
- **Bridge the digital divide:** Sustainable DPI growth requires urgent expansion of underlying telecommunications connectivity and affordable device access
- **Global Cooperation:** Strengthen international cooperation to establish inclusive global standards, curb regulatory arbitrage by Big Tech, and facilitate secure cross-border data and payment flows.



3.3. FISCAL HEALTH INDEX

Why in the News?

NITI Aayog launched the second Annual Edition of **Fiscal Health Index (FHI)**.

About Fiscal Health Index (FHI) 2026

- It provides a **comprehensive and comparable assessment** of the fiscal performance of Indian states.
 - States account for nearly **one-third** of India's general government debt, making their fiscal trajectory central to national fiscal sustainability.
- **Methodology:** It has been calculated for **18 major states and 10 North Eastern (NE)/Himalayan States** for FY 2023-24 using data from the **Comptroller and Auditor General (CAG)**.
 - The **first edition** of the Index (FHI 2025) focused only on **18 major states**.
- **Categorization of states:** Achiever; Front Runner; Performer and Aspirational based on FHI score.
 - NE/Himalayan States have been ranked separately and classified into 3 groups (no Front Runner category)
- **5 Key pillars of FHI 2026:**
 - **Quality of Expenditure:** Reflects how effectively a **state deploys** its resources, with emphasis on productive spending such as capital investment, health, education, and infrastructure relative to salaries, pensions, and interest payments.
 - **Revenue Mobilization:** Captures a state's capacity to generate its **own tax and non-tax revenues**, measured through tax efficiency, buoyancy, base expansion, and collection practices.
 - **Fiscal Prudence:** Assesses the discipline with which a **state manages** its deficits and adheres to fiscal responsibility (FRBM) norms.
 - **Debt Index:** Assesses the size, composition, and burden of a state's outstanding liabilities, including market borrowings and other obligations.

- **Debt Sustainability:** Evaluates a state's **long-term ability** to service debt without creating fiscal stress, based on indicators such as interest payments relative to revenues, primary balance trends, and projected debt.
- **Sub-Indicators** have been refined for NE states to capture unique characteristics **like difficult terrain, sparse population density, limited own revenue capacity**, elevated committed expenditures, greater reliance on Union transfers.

Key Highlights of States' performance for 2023-24

Classification	Performance of Major States (General Category)	Performance of North Eastern (NE) and Himalayan States
Achiever	Odisha followed by Goa and Jharkhand.	Arunachal Pradesh followed by Uttarakhand.
Front Runner	Gujarat followed by Maharashtra and Chhattisgarh, Telangana, Uttar Pradesh and Karnataka.	
Performer	Madhya Pradesh followed by Haryana, Bihar, Tamil Nadu and Rajasthan.	Tripura followed by Meghalaya, Assam, Mizoram and Sikkim.
Aspirational	Kerala followed by West Bengal, Andhra Pradesh and Punjab.	Nagaland followed by Himachal Pradesh and Manipur.

How FHI Encourages prudent and Sustainable Fiscal Policies?

- **Promotes Competitive Federalism:** Public ranking of states creates healthy competition.
- **Evidence-based fiscal policymaking:** By identifying gaps and **highlighting best practices**, the Index supports policymakers in strengthening fiscal governance.
- **Tailored Policy Frameworks:** By capturing the distinct structural characteristics of different regions (such as the distinct fiscal portfolios of North-Eastern and Himalayan states), the FHI provides context-specific insights.
- **Enabling Targeted Interventions:** It outlines each state's fiscal strengths, weaknesses, and overall profile, offering tailored insights to support improvements in their fiscal position.
- **Promote development:** Strengthening fiscal management in **NE and Himalayan regions** can accelerate the success of initiatives like the National Infrastructure Pipeline, the North East Special Infrastructure Development Scheme, and the Green Growth Mission.

Key recommendations for states

- **Improving revenue mobilisation:** It can be done primarily through broadening GST bases and enhancing own-tax capacity, while curbing committed expenditure to restore fiscal flexibility.
- **Contain deficits and stabilise debt trajectories:** By rationalising subsidies, adopting standard expenditure heads, improving the quality and composition of capital spending, and adopting medium-term fiscal plans.
- **Targeted consolidation measures for states with persistent stress:** Like tighter control of off-budget borrowings and better cash and debt management.
- **Support Evidence-based decision making:** Through enhanced public financial management systems, greater transparency using CAG-verified data, and peer benchmarking tools like FHI.

Conclusion

Given the scale of state expenditure responsibilities and their role in delivering key public services, systematic assessment of state finances is essential to ensure fiscal discipline, efficient resource allocation, and long-term macroeconomic stability. The report also stresses the need for stronger public financial management systems, greater transparency in fiscal data and closer monitoring of off-budget borrowings.



3.4. SEMICONDUCTOR

Why in the News?

The Prime Minister inaugurated India's First Semiconductor Assembly, Test, Marking, and Packaging (ATMP) facility in Sanand, Gujarat.

More on the News

- The plant by **Micron Technology** has started **India's first commercial semiconductor chip production**.
- This is a key step towards building a trusted, **resilient**, and **self-reliant** semiconductor ecosystem.
 - It will also enhance India's participation in the global semiconductor value chain.

Status of Semiconductor Ecosystem in India

- India's semiconductor market is valued at **\$52 billion in 2024-25**.
 - The market is set to hit **\$100–110 Bn by 2030**.
- India currently meets **only ~10% of its semiconductor demand domestically**.
- Key Growth drivers:** Electronics manufacturing (e.g., India is the second-largest smartphone manufacturer in the world), rising demand for electric vehicles, etc.

Need for Building Indigenous Capacity in Semiconductor Manufacturing

- Reducing dependence on Imports:** India imported \$1 billion worth of semiconductors annually for defence needs (2024).
 - It is also critical for telecom (5G/6G), AI, space, and digital infrastructure.
- Vulnerability of Concentrated Supply Chains:** **Taiwan** alone accounts for over 60% (remaining South Korea, Japan, China, and the United States) of global semiconductor manufacturing and nearly 90% of the most advanced chips.
 - The world witnessed an acute shortage of chips **following the Covid 19 pandemic and the Ukraine-Russia war**.
- Export Potential:** Boosts electronics manufacturing and attracts FDI, helping India capture a substantial share of the \$1 trillion semiconductor market by 2030.
 - Also, it will **create high-value manufacturing jobs** and **stimulate upstream and downstream sectors**, including equipment, materials, and tools.

Key Initiatives taken to Support Semiconductor Ecosystem

- India Semiconductor Mission (ISM) & Semicon India:** ISM is the nodal agency driving the country's long-term semiconductor sector. In the Union Budget 2026–27, ISM 2.0 has been announced. **ISM** includes four primary schemes:
 - Semiconductor Fabs Scheme**
 - Display Fabs Scheme**
 - Compound Semiconductors & ATMP/Outsourced Semiconductor Assembly and Test (OSAT) Scheme**
 - Design Linked Incentive (DLI) Scheme**

Know the term

Semiconductors

- Materials whose electrical conductivity falls between that of **conductors** and **insulators** are known as semiconductors.
- These are essential building blocks of modern electronics (act as the hidden brains that make devices work).
- They are made from pure elements, such as **silicon** or **germanium**, or compounds such as gallium arsenide.

Challenges Faced by India

High Capita Intensity

The first commercial semiconductor fab required an initial investment of over ₹91,000 crores.

Infrastructure Demands

Uninterrupted power supplies, vast quantities of clean water, and expensive water purification facilities are needed.

Technological Complexity

The production process requires cutting-edge technology, sophisticated materials, and extreme precision.

Skilled Labour Shortage

The constant evolution of chip technology creates a continuous need for specialised talent.

- **Talent and Skill Development:** It includes **Chips to Start-up (C2S) Programme**, AICTE Curriculum Updates (introduced specialised engineering programs), etc.
- **Indigenous Microprocessors and Core Technologies:** **Microprocessor Development Programme (MDP)** and the **Digital India RISC-V (DIR-V) Programme** have led to the creation of native open-source processors like SHAKTI, VIKRAM, etc.
 - A major milestone is the recent launch of **DHRUV64**, a fully indigenous 64-bit microprocessor developed by C-DAC for applications in 5G, IoT, and industrial automation.
- **Global Collaboration:** E.g., India- U.S. Initiative on **Critical and Emerging Technology (iCET)**, U.S.-led Pax Silica Initiative, etc.
- **Other:** Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs), Electronics Components and Manufacturing Scheme (ECMS), etc.

Way Forward

- **Institution-Building:** Emulating the success of Taiwan's Industrial Technology Research Institute (ITRI), India needs a dedicated institution like the proposed India Semiconductor Research Centre (ISRC).
- **Building a Massive Talent Pipeline:** Integrating harmonized semiconductor programs into mainstream engineering, such as the AICTE's new curricula for Integrated Circuit (IC) manufacturing.
- **Scaling Startups and Indigenous R&D:** There is a need to move beyond assembly and into core innovation.
- **Transitioning to Next-Generation Materials:** The industry must also support the shift from traditional **silicon** to **Silicon Carbide (SiC) semiconductors** and **3D Glass packaging**.
 - These are essential for high-temperature and high-voltage applications like defence.
- **Enhancing State-Level Coordination and Infrastructure:** States like Gujarat, Tamil Nadu, and Odisha are setting precedents by providing streamlined regulations, harmonized power, etc.
- **Forging Strategic Global Partnerships:** Actively engaging in global collaborations and hosting platforms like **SEMICON India**, and integrating India into the supply chains of established semiconductor nations like the US, Japan, etc.



Conclusion

India's semiconductor push marks a decisive shift from import dependence to technological self-reliance, strengthening economic and strategic security. With sustained policy support, investments, and global partnerships, India is poised to emerge as a key player in the global semiconductor value chain.

3.5. REGIONAL CONNECTIVITY SCHEME (RCS) – MODIFIED UDAN

Why in the News?

The Union Cabinet recently approved the Regional Connectivity Scheme (RCS) – **Modified UDAN** for a **10-year period from FY 2026-27 to FY 2035-36**.

Components of the RCS-Modified UDAN

Total outlay of ₹28,840 crore, backed entirely by government budgetary support.

- **Development of Aerodromes (CAPEX):** Development of **100 airports** from existing unserved airstrips over the next eight years.
- **Operation & Maintenance (O&M) Support:** Provision of O&M support for **three years** to ~ **441 aerodromes**, capped at ₹3.06 crore per annum per airport and ₹0.90 crore per annum per heliport/water aerodrome.
- **Development of Modern Helipads:** Construction of **200 modern helipads** in hilly, remote, island, and aspirational regions at ₹15 crore each.

- **Viability Gap Funding (VGF):** Recognising the need for longer market development, VGF support to airline operators is proposed over 10 years.
 - Under the Scheme, airline operators receive financial support in the form of VGF for operating awarded routes.
- **Atmanirbhar Bharat and Indigenous Aviation Capacity:** Procurement of **two HAL Dhruv helicopters for Pawan Hans and two HAL Dornier aircraft for Alliance Air** to address aircraft shortages in difficult terrains and promote Atmanirbhar Bharat vision.

Key features of the scheme

- **Comprehensive Intervention:** Designed as an upgrade to the original scheme to **address persistent infrastructure and operational bottlenecks** in regional aviation.
- **Ecosystem Approach:** Moves beyond just opening new routes by focusing on stronger airport infrastructure, reliable operational support, and viable ecosystems for airlines.
- **Challenge Mode Implementation:** UDAN airports will be developed under a '**Challenge Mode**' to ensure timely completion, quality, and sustainability.
- **Indigenous Push:** Integrates **the Atmanirbhar Bharat** vision by promoting the domestic aerospace sector to meet regional flying requirements.

Potential Impacts of the Scheme



Enhanced regional air connectivity to underserved and unserved areas



Support affordable air travel for common citizens



Boost to economic growth, trade and tourism in Tier-2 and Tier-3 cities



Improved emergency response and healthcare access in remote and hilly regions



Promotion of the indigenous aerospace sector under Atmanirbhar Bharat



Greater viability and sustainability for regional aerodromes and airline operators



Progress towards Viksit Bharat 2047 goal

Issues and Challenges associated with the UDAN

- **Aviation Safety Concerns:** A **Parliamentary Standing Committee** highlighted systemic safety issues, including:
 - 100 safety lapses flagged in a single airline audit and 19 safety violation notices,
 - Recurring technical defects in 377 out of 754 audited aircraft.
 - > The recent **Ahmedabad crash** resulted in 260 fatalities.
- **Route Sustainability:** The Ministry has acknowledged the **absence of a structured exit strategy for routes that complete their VGF subsidy period.**
- **Operational Discontinuations:** Out of **925** awarded routes, **327** were **discontinued** due to **factors** like the COVID-19 pandemic, aircraft shortages, supply chain disruptions, maintenance issues, and low passenger demand.
 - **Over 150 awarded routes remain uncommenced.**
- **Manpower Shortages:** The Directorate General of Civil Aviation (**DGCA**) **faces a severe staff crunch** with a **vacancy rate of 48.3%**, operating with only 843 incumbents against 1,630 sanctioned posts.
- **Passenger Rights:** Despite carrying over 350 million passengers annually, **India lacks a comprehensive statutory passenger rights framework** to govern compensation and delay management.

Way Forward

Recommendations of the Parliamentary Standing Committee

- **Independent Safety Review:** Constitute an independent **High-Level Committee on Aviation Safety** to conduct a **comprehensive safety review** and perform a root-cause analysis of systemic failures.
- **Formal Impact Assessment:** Conduct a **formal, independent impact assessment of the UDAN scheme** covering cost per passenger, route-wise viability, and the proportion of routes achieving self-sustainability.

- **DGCA Capacity Building:** Prepare and execute a comprehensive, time-bound recruitment and deputation schedule to resolve DGCA manpower vacancies.
- **Passenger Rights Charter:** Develop a **formal Passenger Rights Charter under the Bharatiya Vayuyan Adhiniyam 2024** to address compensation, delay management, and accountability standards.
- **Enhanced Transparency:** Improve parliamentary visibility of the Airports Authority of India's (AAI) capital investment programmes.

About UDAN (Ude Desh ka Aam Nagrik) Scheme

- **Launch:** Conceptualised under the **National Civil Aviation Policy (NCAP) 2016** and officially **launched on October 21, 2016**.
- **Type:** Central **Sector Scheme**.
- **Ministry:** **Ministry of Civil Aviation**
- **Implementing Agency:** The Airports Authority of India (AAI).
- **Objective:** **Democratize aviation** by making flying accessible and affordable for the common citizen through a market-driven, financially supported model.
- **Key Mechanisms:** Provides **Viability Gap Funding (VGF)** to airlines, mandates an airfare cap, and utilizes a collaborative governance model among the Centre, States, and airport operators.
- **Stakeholder Incentives:** Includes waived landing and parking charges by airport operators, a 2% cap on ATF excise duty by the Central Government, and VAT reduction to 1% or less on ATF by State Governments.
- **Achievements (as of March 2026):**
 - **Phased Expansion (UDAN 1.0 to 5.0 Series):** Progressively expanded to cover unserved/underserved airports, helipads (UDAN 2.0), Tourism Routes and Seaplanes (UDAN 3.0), and hilly/island territories (UDAN 4.0), and Diversified last-mile connectivity (UDAN 5.0 to 5.5).
 - Operationalised **663 routes across 95 airports**, heliports, and water aerodromes.
 - **Disbursed ₹4,593.28 crore** as Viability Gap Funding to selected airlines since its inception.
 - Facilitated the expansion of **India's overall airport network from 74 in 2014 to 159 in 2024**.
- **Sector-Specific UDAN Initiatives**
 - **Krishi UDAN:** To assist farmers by facilitating the seamless air transport of **perishable agricultural produce**.
 - **International UDAN (IACS):** The **International Air Connectivity Scheme** aims to directly link Indian state capitals and Tier-2 cities with key international destinations to boost local trade, tourism, and economic growth.
 - **UDAN Yatri Cafes:** Launched to make air travel more inclusive by offering quality food at highly accessible prices (e.g., tea for ₹10, samosas for ₹20). It is now operational at **17 airports** in India.
 - **Seaplane Operations:** UDAN Round 5.5 was specifically launched to invite bids for over 50 identified water bodies
 - **Lifeline UDAN:** Initiated **during the COVID-19 lockdown**, this initiative operated hundreds of flights to transport critical medical cargo, vaccines, and essential supplies to remote regions and island territories.

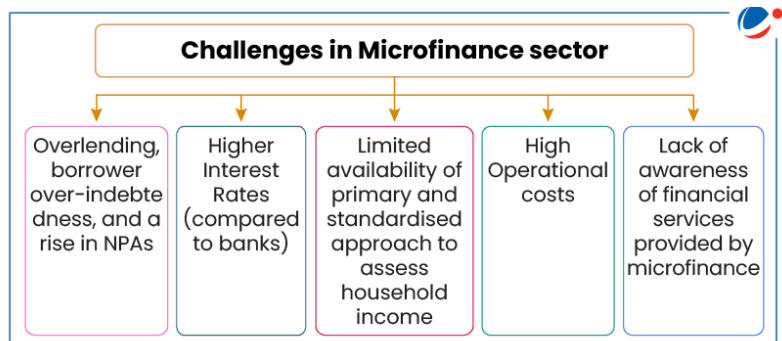
3.6. NEWS IN SHORT

3.6.1. CREDIT GUARANTEE SCHEME FOR MICROFINANCE INSTITUTIONS-2.0 (CGSMFI-2.0)

Government of India has launched CGSMFI-2.0 with Rs 20000 crore corpus.

About CGSMFI-2.0

- **Objective:** To provide guarantee coverage to eligible Member Lending Institutions (MLIs) for financing **Non-Banking Financial Company MFI (NBFC-MFI) and MFIs** for on-lending to existing or new small borrowers.



- NBFC-MFI are non-deposit taking NBFC with **minimum 75%** of its total assets deployed towards “**microfinance loans**” (**collateral-free loan** a household with annual household **income up to ₹3,00,000**).
- **Managed and operated by:** National Credit Guarantee Trustee Company (NCGTC), wholly owned by Department of Financial Services, Ministry of Finance
- **Tenure:** June 2026 or till guarantees of Rs 20,000 crore are issued

About Microfinance

- It refers to the provision of **small-scale financial services**, including loans, savings, and insurance, to individuals and small businesses that lack access to traditional banking services.
- **Significance of Microfinance in India:**
 - **Financial inclusion and Poverty Alleviation:** Fills gap left by traditional banks, bringing low-income groups into formal financial system.
 - **Supports MSMEs and entrepreneurship:** By providing tailored loans without mandatory collateral requirements.
 - **Women Empowerment:** Women borrowers constitute 95% in microfinance sector. (Economic Survey 2025-26).



Read our previous coverage on Microfinance sector

3.6.2. MUTUAL CREDIT GUARANTEE SCHEME FOR MSMEs

Government has **modified** the **Mutual Credit Guarantee Scheme to Support MSME**.

About Mutual Credit Guarantee Scheme for MSMEs (2025)

- It is a **Central Sector Scheme**
- **Objective:** Provides **60% credit guarantee** via **National Credit Guarantee Trustee Company Limited (NCGTC)** to Member Lending Institutions (MLIs) for loans **up to ₹100 crore to MSMEs** for machinery/equipment purchase.

Key Modifications

- **Expanded Eligibility:** **Service Sector** MSMEs are now eligible.
- **Equipment Cost Threshold:** **Reduced to 60%** of the total project cost from the previous requirement of **75%**.
- **Guarantee Tenure:** The guarantee cover will **expire after 10 years**.
- **Special provisions** incorporated in the scheme for **exporters** E.g. Guaranteed Loan Amount of ₹20 crore etc.

3.6.3. NEW GROSS DOMESTIC PRODUCT (GDP) SERIES RELEASED

The Ministry of Statistics and Programme Implementation (MoSPI) released the **New Series of Annual and Quarterly National Accounts Estimates (including the GDP)**.

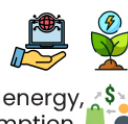
Key changes in the New GDP Series

- **New Base Year: 2022-23** (earlier 2011-12).
 - FY 2022-23 was selected as the **most recent “normal” period** following the COVID-19 disruptions of 2019-2021.
- **New Data Sources:** Now integrates **high-frequency and administrative data**, including **GST collections**, the **e-Vahan portal**, and the **Public Financial Management System (PFMS)**.
- **Refined Deflation Techniques:** **Double deflation** (discounting input price as well,

WHY GDP BASE YEAR BEEN REVISED?

Structural Shifts

New base captures expansion of digital services, renewable energy, and evolving consumption patterns over the last decade.



International Best Practices

Periodic revisions support alignment with international best practices recommended by UN Statistical Commission.



IMPLICATIONS OF REVISED GDP BASE YEAR

DECREASE IN GDP SIZE

Despite higher real growth of 7.6% (FY 2025-26), nominal size of economy revised downward by ~3.3-3.8% (₹345.47 lakh crore for FY 2025-26) for years 2023-26.

HIGHER FISCAL DEFICIT (FD)

Lower GDP base pushes FY 2025-26 revised FD estimate up from 4.36% to 4.51% of GDP.

HIGHER DEBT-TO-GDP

Estimated at 57.5% (against budgeted target of 55.6%), complicating goal of reducing central debt to 50% by 2031.

along with output price) is now applied in manufacturing and agriculture, discontinuing the use of **Single deflation**.

- **Integration of Supply and Use Tables (SUT):** The SUT framework has been **aligned with National accounts** to reduce discrepancies between production- and expenditure-based GDP estimates.
- **Improved Estimation of Private Final Consumption Expenditure (PFCE):** By integrating direct estimation from production, administrative data, and the commodity flow approach.
- **General Government Adjustments:** Government **estimates now account for the rollout of the National Pension System (NPS)** alongside the Old Pension Scheme (OPS).
- **Other:** Inclusion of
 - **Hired domestic workers** capturing digital, platform and gig economy activities in the Revised GDP Series;
 - **Annual Survey of Unincorporated Sector Enterprises (ASUSE)** and the **Periodic Labour Force Survey (PLFS)** to better measure the household and informal sectors.

3.6.4. INFLATION TARGET FOR 2026-2031

Union Government notified the inflation target for 2026-2031 under Flexible Inflation Targeting (FIT) Framework.

- The FIT framework was **recommended** by an Expert Committee headed by **Dr. Urjit Patel**
- In 2016, the Reserve Bank of India Act, 1934 was amended to provide a statutory basis for the implementation of the FIT framework in India.

About FIT Framework

- As per Section 45ZA of the RBI Act, 1934, Central Government shall, in consultation with the Bank, determine the **inflation target in terms of the Consumer Price Index (CPI), once in every five years**.
- **Target:** Central Government then notified the **inflation target of 4%** with **upper tolerance band of 6% and lower tolerance band of 2%** for the period 2016-2021.
 - This target was retained for 2021-2026 and now has been retained for 2026-2031 as well.
- **Target Achievement:** RBI Act provides for a **Monetary Policy Committee (MPC)** to determine the policy rate required to achieve the inflation target.
- **Composition:** It is a **six-member body** comprising:
 - RBI Governor (ex-officio Chairperson)
 - RBI Deputy Governor (in charge of monetary policy)
 - One RBI officer nominated by the Central Board
 - Three external members appointed by the central government with expertise in economics, banking and finance, or monetary policy
- **Policy Failure:** Inflation outside the tolerance band for **three consecutive quarters** is considered a failure of the monetary policy framework.

3.6.5. INDEX OF CORE INDUSTRIES

Growth of combined index of core industries **slowed to 2.3% in February**, compared with 4.7% in January, on an annual basis.

About the index

- It covers **eight core industries** viz. **Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizers, Steel, Cement, and Electricity**.
 - They comprise **40.27% of weight of items** in **Index of Industrial Production (IIP)**.
- **Released by:** **Office of the Economic Advisor**, Department for Promotion of Commerce and Industry, Ministry of Commerce.

3.6.6. ANNUAL SURVEY OF UNINCORPORATED SECTOR ENTERPRISES (ASUSE)

Results of the Annual Survey of Unincorporated Sector Enterprises (ASUSE) 2025 have been released for the period January–December 2025.

About ASUSE

- **Conducted by:** **National Statistical Office (NSO)** under the Ministry of Statistics and Programme Implementation (MoSPI).
- **Purpose:** Input for GDP estimation and National Accounts.
- **Coverage:** Unincorporated non-agricultural sector; manufacturing, trade, services.
- **Indicators:** Employment, GVA, wages, digital usage, etc.

3.6.7. FDI POLICY FOR COUNTRIES SHARING LAND BORDER WITH INDIA

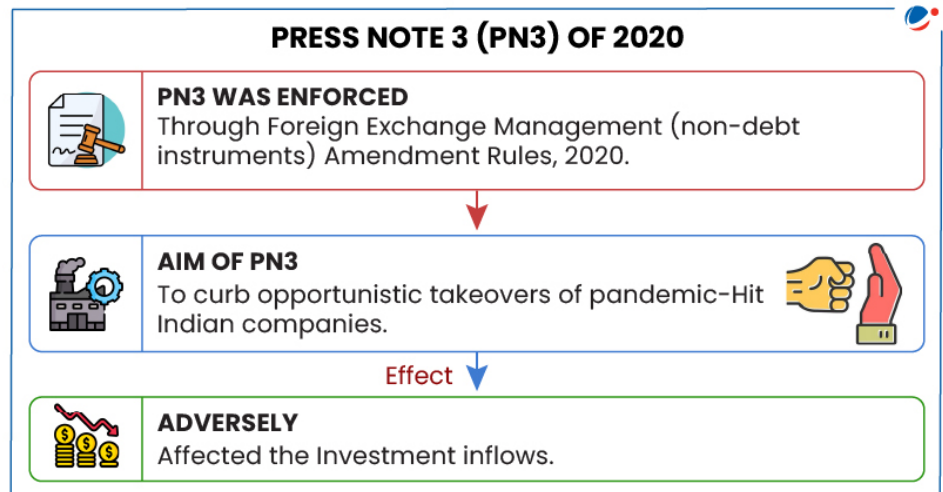
Union Cabinet approved changes in FDI policy for countries sharing land border with India (LBCs).

Key changes Introduced

- **Beneficial Owner (BO):** **Clear definition** of BO incorporated under the Prevention of Money Laundering Rules, 2005, enabling **ease of doing business**.
- **Eased Criteria for Investment:** **Non-controlling** Investor from LBCs owning **less than 10%** of the company can invest through the **Automatic Route**.
 - Previously, as per **Press Note 3 (PN3) of 2020**, any investment from LBCs was permitted **only under the Government route**.
- **Expedited 60-Day Timeline:** Proposals in select sectors will be cleared within 60 days. E.g. manufacturing capital goods, electronics, Polysilicon and ingot-wafer etc.
 - In these cases, majority **ownership and control** must remain with **resident Indian citizens or Indian-owned entities**.

Benefits

- **Ease of Doing Business:** Clear BO rules and timelines **reduce regulatory uncertainty for investors**.
 - This makes it easier for **Indian startups and tech companies** to get funding from global funds.
- **Economic Growth:** Facilitates higher Foreign Direct Investment (FDI) inflows to supplement domestic capital.
- **Supply Chains:** Faster approvals enable quicker Joint Ventures and tech access, strengthening global manufacturing integration.
- **Atmanirbhar Bharat:** Attracts tech-intensive investments in electronics and solar manufacturing, **strengthening domestic manufacturing capabilities**.



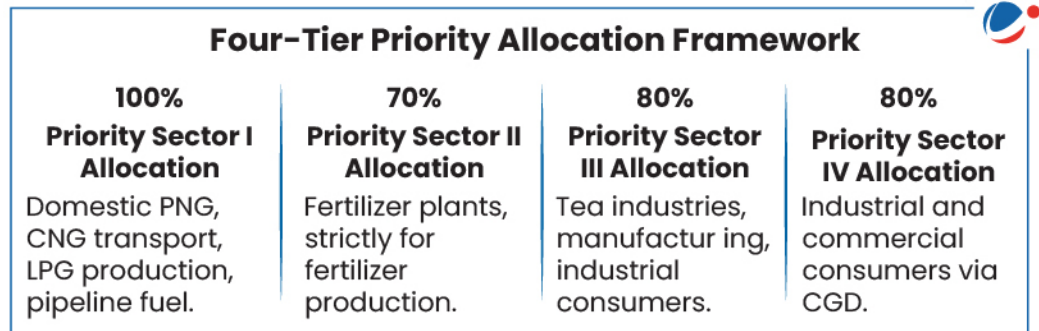
3.6.8. ESSENTIAL COMMODITIES ACT, 1955

The Central Government has issued the **Natural Gas (Supply Regulation) Order, 2026**, invoking powers under the **Essential Commodities Act, 1955 (ECA)**.

- It was prompted by the **ongoing conflict in West Asia** which has severely disrupted **liquefied natural gas (LNG)** shipments through the **Strait of Hormuz**.

Key Provisions of the Order

- **Four-Tier Priority Allocation Framework:** To manage the limited supply, the allocation framework is based on consumers' average gas usage over the past six months. (see infographic)
- **Gas redistribution:** Gas supplies will be **partially or entirely curtailed for non-priority** industries, including **power plants and petrochemical facilities**.
- **Gas Pooling Mechanism:** Gas **diverted** from non-priority to priority sectors will be sold at a **newly determined pooled price**.



About ECA, 1955

- **Objective:** It allows the government to regulate production, supply, and prices of essential goods to prevent hoarding, black marketing, and shortages.
- **Section 3 of the ECA** empowers the **Central Government** to regulate the supply and distribution of **petroleum and petroleum products** and related trade for securing their **equitable distribution**.

Other Measures Taken

- **25 day inter- booking period** to avoid hoarding/black marketing of LPG.
- Imported LPG is being prioritised to **essential non domestic sectors** such as Hospitals and Educational institutions.
- A **High-level Committee** constituted to review supply to other non-domestic sectors E.g. **hospitality sector**

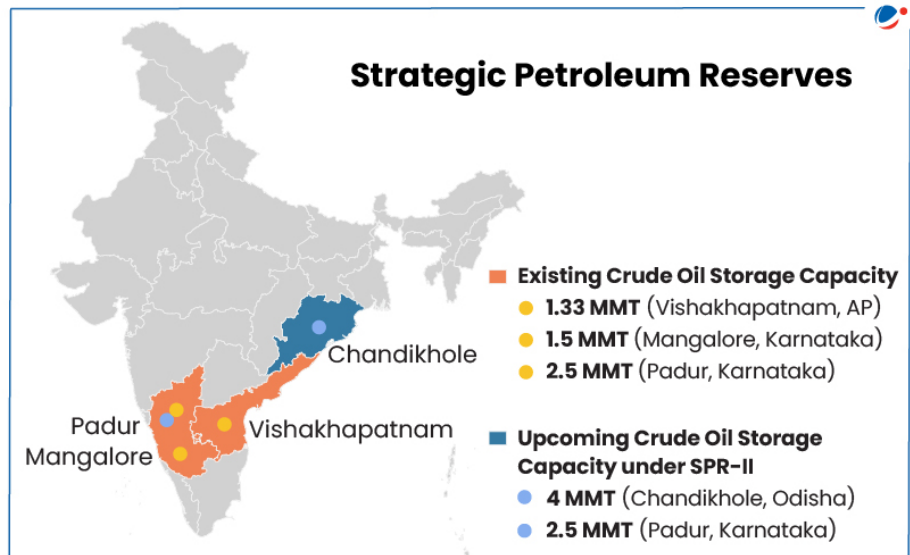
3.6.9. STRATEGIC PETROLEUM RESERVES (SPRS)

India's **SPRs** currently have a capacity of **5.33 million metric tonnes (MMT)**.

- These are enough to last around **9.5 days of India's crude oil supplies at their full capacity**.

What are SPRs?

- **About:** These are **stockpiles of crude oil**, maintained by the government to **ensure energy security** to be used during **supply disruptions**.
 - These exist **in addition to the commercial stocks** held by oil companies.
- **Implementing Agency:** under Special Purpose Vehicle called **Indian Strategic Petroleum Reserves Limited (ISPRL)**, established in **2004**.
- **Ministry:** Ministry of Petroleum and Natural Gas.
- **Storage Technology:** Crude oil is stored in **underground rock caverns**, located deep below the ground, usually near coastal areas.
- **Locations (refer map)**
 - **Phase-I SPR Facilities (5.33 MMT):** Currently operational at three locations



- > **Visakhapatnam** (Andhra Pradesh)
- > **Mangaluru** (Karnataka)
- > **Padur** (Karnataka)
- **Phase-II (approved in 2021, with additional 6.5 MMT):** Future expansion planned at
 - > **Chandikhol** (Odisha)
 - > **Padur Phase-II**

Significance of SPRs

- **Energy Security:** Provides protection against wars, supply disruptions, shipping blockades, etc.
- **Economic Stability:** Prevents the nation from sudden inflationary shocks as it acts as a market stabilization tool.
- **Strategic Autonomy:** Reduces dependence on external geopolitical dynamics.

Challenges to overcome by India

- **Limited Storage Capacity:** India's SPR capacity is **much lower than the 90-day benchmark (IEA)** covering only a **limited duration of consumption**.
- **Policy and Operational Issues:** There is **lack of clear policy on when to release reserves**, especially during price fluctuations.

3.6.10. NATURAL GAS AND PETROLEUM PRODUCTS DISTRIBUTION ORDER, 2026 NOTIFIED

Order notified under the **Essential Commodities Act, 1955**, aims to facilitate expansion of **piped natural gas (PNG)** networks, shift towards cleaner fuels, energy security and supporting **India's transition to a gas-based economy**.

- **Key Reforms:** Time-bound clearances, single harmonized framework, expand City Gas Distribution (CGD) networks etc.

Gas-Based Economy

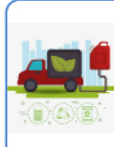
- **Target:** India aims to increase the share of **Natural gas** is a **fossil fuel** composed mainly of **methane (CH₄)** in its energy mix to 15% by 2030
 - As of **2025**, its share is **only 6.2%**.
 - **Natural gas** is mainly composed of methane (CH₄).
- **Demand Projection:** Natural gas consumption is forecasted to more than double, growing from 52 MTPA in FY25 to 112 MTPA by FY40.
- **Key Significance**
 - **Decarbonization:** Lowers emissions by 15-20% compared to petrol and significantly reduce particulate matter (PM), Nox, and Sox emissions.
 - **Energy Security:** Diversifies the energy distribution network, reducing over-reliance on singular fossil fuels like imported crude oil.
 - **Economic Viability:** LNG offers a commercially viable alternative with a clear Total Cost of Ownership (TCO) advantage over diesel for heavy-duty long-haul trucking.

Initiatives Taken of Gas-Based Economy



Expanding National Gas Grid

Jagdishpur-Haldia/Bokaro-Dhamra pipeline (Eastern India) and the **Indradhanush Gas Grid Ltd (IGGL)** for the North-East.



SATAT (Sustainable Alternative Towards Affordable Transportation) Scheme & CBG Mandates

Launched in 2018 to invite entrepreneurs to produce **Compressed Bio Gas (CBC)** from waste.



Unified Tariff (UFT) Policy

Introduced by the **Petroleum and Natural Gas Regulatory Board (PNGRB)** to create a consistent, fair, **distance-zone-based tariff structure** across the country.



Other

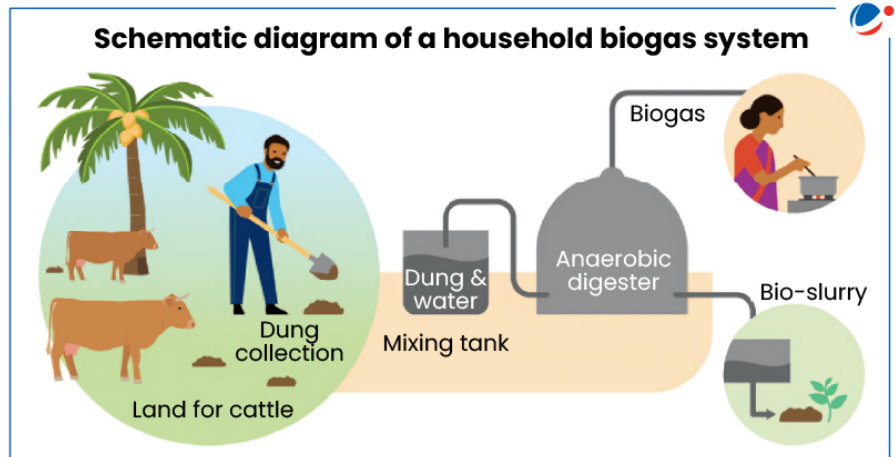
Indian Gas Exchange (IGX), etc.

3.6.11. BIOGAS, EMERGING AS AN ALTERNATIVE AMIDST RISING COOKING FUEL CRUNCH

Biogas is produced after **organic materials** (plant and animal products) are broken down by bacteria in an **oxygen-free environment**, a process called **anaerobic digestion**.

About Biogas

- **Composition:** Methane (CH₄) 55-60%, Carbon dioxide (CO₂) 35-40%, Trace elements of Ammonia Hydrogen Sulphide (H₂S) and moisture.
- **Main Technologies Involved in Production:**
 - **Biodigesters:** Airtight systems (e.g. containers or tanks) where organic material, diluted in water, is broken down by naturally occurring **micro-organisms**.
 - **Landfill gas recovery systems:** Involves decomposition of **municipal solid waste (MSW)** under anaerobic conditions at landfill sites.
 - **Wastewater treatment plants:** These could recover **organic matter**, solids, and nutrients from **sewage sludge**, which could be used as input to produce biogas.



Relevance of Biogas as Alternative Cooking Fuel

- **Diversifying energy mix:** Heavy reliance on imported fuels increases **vulnerability to global shocks**.
- **Reduce Chemical Fertilizer Dependence:** Biogas production also yields **bio-slurry**, a nutrient-rich byproduct, could be used as **organic fertilizer**.
- **Benefits for Rural Areas:** Enhances **rural energy access**, improves **waste management**, and offers **cleaner alternative** to using fossil fuel based resources.

Key Initiatives taken for Biogas promotion in India

- **Galvanizing Organic Bio-Agro Resources Dhan (GOBARdhan) Scheme:** Launched under Swachh Bharat Mission (Grameen) in 2018, aims at **converting bio-waste into biogas**.
- **National Bio Energy Programme (NBP):** comprises sub-schemes related to Biogas
 - **Waste to Energy Programme:** Energy from Urban, Industrial, Agricultural Wastes and Municipal Solid Waste in the form of Biogas/BioCNG, etc.
 - > Processes like **incineration, gasification, or pyrolysis** are involved in waste to energy technologies.
 - **Biogas Programme (2021-22 to 2025-26):** Setting up of **biogas plants** for clean cooking fuel, lighting, etc.



**Read our Weekly
Focus coverage
on India's
Bioeconomy**

3.6.12. RELIEF UNDER THE EXPORT PROMOTION MISSION (EPM)

Government approved RELIEF (Resilience & Logistics Intervention for Export Facilitation) under the Export Promotion Mission (EPM)

- RELIEF is aimed at supporting Indian exporters affected by extraordinary freight escalation, heightened insurance premia and **war-related export risks** arising from disruptions in the Gulf and wider West Asia maritime corridor.

About RELIEF

- **Aim:** Mitigate the immediate impact of logistics disruptions, protect exporter confidence, prevent order cancellations and safeguard employment in export-linked sectors.

- **Nodal and Implementing Agency:** ECGC Ltd. (Formerly Export Credit Guarantee Corporation of India Ltd.), wholly owned by Government of India (Ministry of Commerce & Industry).
 - ECGC was set up in 1957 with the objective of promoting exports from the country by **providing Credit Risk Insurance** for exports.
- **Components:** The following three components cover **consignments destined to countries in the West Asia region** such as UAE, Saudi Arabia, Kuwait, Israel, Qatar, Oman, Bahrain, Iraq, Iran and Yemen, meant either for delivery or for transshipment:
 - Upto **100% risk coverage** to exporters who have already obtained ECGC credit insurance cover,
 - **Encouragement to exporters** planning upcoming consignments during the next three months to **obtain ECGC cover** with Government support for upto 95% risk coverage,
 - **Partial reimbursement (upto 50%)** mechanism for eligible non-ECGC-insured MSME exporters.



Read our previous coverage on the Export Promotion Mission

About Export Promotion Mission

Vision

Provides a comprehensive, flexible, and digitally driven framework for export promotion.



Financial outlay

Rs. 25,060 crores.



Timeline

Six years (FY 2025-26 to FY 2030-31).



Two sub-schemes

Niryat Protsahan (Financial Support)

Improving access to affordable trade finance for diversification into new markets.



Niryat Disha (Non-Financial Support)

Enhancing the market readiness and competitiveness of exporters.



Implementing Agency: Directorate General of Foreign Trade.

3.6.13. REMISSION OF DUTIES AND TAXES ON EXPORTED PRODUCTS (RODTEP) SCHEME

The Government of India has decided to restore the rates and value caps under the Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme for all eligible export products.

About (RoDTEP) Scheme

- **Launched in 2021** by amending the Foreign Trade Policy 2015-20.
 - The scheme **replaced Merchandise Exports from India Scheme (MEIS)** after the WTO declared that MEIS was not in line with international trade practice.
- **Objective:** It provides refunds of taxes, duties and levies incurred during the manufacturing and distribution of exported goods that are not reimbursed under any other central, state or local mechanism.

- **Administered by** the Department of Revenue under the Ministry of Finance.

3.6.14. NATIONAL SHIPPING BOARD (NSB)

The government held a **high-level interaction with National Shipping Board (NSB)** to address emerging challenges in India's shipping sector.

About National Shipping Board

- It is a **permanent statutory body** established in 1959, under Section 4 of Merchant Shipping Act, 1958.
- **Ministry:** Ministry of Ports, Shipping and Waterways
- **Objective:** Advise government on matters related to shipping including the development and evolution of India's maritime policy.
- **Composition:** Chairman and other members
 - **Six Members elected by Parliament** (four from Lok Sabha and two from Rajya Sabha from amongst its members).
 - Such **number of other members not exceeding sixteen** as Central Government thinks fit.

3.6.15. INVIT

NHAI's first public infrastructure investment trust (InvIT) listed on BSE.

About InvIT

- It is an **investment vehicle like mutual funds/REITs**, enabling direct investment in **infrastructure projects**.
 - They pool funds, list on stock exchanges, and distribute income generated from assets to unit holders.
 - Income source include tolls, rents, interest and dividends from infrastructure assets.
- **Investment structure:** Funds deployed directly or through SPV (Special Purpose Vehicle)/holding company.
- **Regulation:** Governed by **SEBI (Infrastructure Investment Trusts) Regulations, 2014**.

3.6.16. BUREAU OF INDIAN STANDARDS (BIS)

Recently, Union Minister for Consumer Affairs, Food and Public Distribution highlighted decade of transformation at BIS.

Bureau of Indian Standards (Hq: New Delhi, India)

- **Genesis:** Established as **Indian Standards Institution (ISI) in 1947**. Bureau of Indian Standards Act, 1986, came into force in 1987 that established BIS as a body.
- **Objective:** It is the **National Standards Body** of India responsible for harmonious development of the activities of **standardization, marking and quality certification** of goods.
- **Statutory Framework:** Bureau of Indian Standards Act, 2016 expanded BIS's framework and enables certification schemes, mandatory certification and hallmarking, along with consumer protection measures.
- **Regional Network:** It has 5 Regional Offices at Kolkata, Chennai, Mumbai, Chandigarh and Delhi.
- **Functions:**
 - **Standards Formulation:** Over 23,300 Indian Standards are in force including renewable energy, electric mobility, smart infrastructure and sustainability.
 - **Product Certification:** Certified products increased to 1,437+ in 2025, including additions like currency note sorting machines.
 - **International Cooperation:** Hosting the **International Electrotechnical Commission (IEC) General Meeting**.
 - **Hallmarking:** Certifies purity of **gold and silver jewellery** through hallmarking schemes.
 - **Others:** **Laboratory services, training services** through the National Institute of Training for Standardisation, and **consumer affairs and publicity** initiatives such as BIS Care App and Rashtriya e-Pustakalay.
- **Achievements:** About **94% of Indian standards** have been harmonised **with the International Organisation for Standardisation (ISO)** and the **International Electrotechnical Commission (IEC) standards**.

3.6.17. COCONUT

The Union Budget 2026-27 announced 'Coconut Promotion Scheme' aimed at rejuvenating old, non-productive coconut gardens and expanding cultivation along coastal areas.

About Coconut Production

- India is the **world's largest producer** of coconuts contributing to **nearly 30% of the Global coconut production**.
- **Ideal Conditions for Coconut Cultivation**
 - **Latitude:** 23 degrees North and South of Equator in tropical and hot climate.
 - **Altitude:** Grows from sea level up to 600 m.
 - **Temperature:** should be from 20 ° to 32°C.
 - **Rainfall:** 1000–2500 mm annually.
 - **Soil Type:** Well-drained sandy loam, laterite, coastal alluvial soils.
- **Major Producers:** Kerala, Tamil Nadu, Karnataka.



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4. SECURITY

4.1. ROLE OF MSMEs IN DEFENCE SECTOR OF INDIA

Why in the news?

The Defense Minister has highlighted that **MSMEs are safeguarding national interests by strengthening defence capabilities** at National Defence Industries Conclave 2026.

Role of MSMEs in Defence Sector

- **Cutting-Edge Technologies**

- **Unmanned Systems & Drones:** *ideaForge* supplies the Indian Army with UAVs for high-altitude transport and border surveillance.

> In the maritime and

ground sectors, *EyeROV* and *Sagar Defence Engineering* build underwater and surface drones.

- **Cyber Defence & Communications:** Companies like *Qnu Labs*, *QpiAI*, and *Signalchip* are delivering solutions ranging from space surveillance to quantum-secure communications.

- **Aerospace & Surveillance:** Startups like *NewSpace* focus on aerospace technology for stratospheric operations and sensor fusion.

- **Suppliers of Critical Sub-Systems:** MSMEs currently produce vital parts for defence platforms, including missiles, ships, vehicles, and aircraft.

- **Service Providers in MRO:** MSMEs are increasingly fulfilling a growing segment of MRO services required to maintain military aircraft and vehicles.

Steps Taken to promote MSMEs

- **Funding:** The all-time high allocation of Rs 7.85 lakh crore to the Ministry of Defence in the Union Budget 2026-27 provides opportunities of MSMEs.
- **Schemes:** Innovations for Defence Excellence (iDEX) and the Technology Development Fund (TDF).
 - The Department of Defence Production established a dedicated scheme to promote MSMEs, offering financial sponsorships.

Overview of MSMEs in Defence Sector of India



Status of MSMEs



About 8,000 MSMEs actively participating in defence sector.



Market Share



MSMEs hold largest market share for armed forces **procurement** after Defence Public Sector Undertakings (DPSUs) and large private industries.



Read our previous coverage on MSMEs

4.2. NEWS IN SHORTS

4.2.1. SIPRI'S REPORT ON INTERNATIONAL ARMS TRANSFERS

Stockholm International Peace Research Institute (SIPRI) released Trends in International Arms Transfers, 2025.

- **SIPRI** is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament.

Key Highlights

- **Second Largest Importer:** India was the second largest recipient of major arms (Ukraine on top) globally in 2021–25, accounting for **8.2% of total global arms imports**.
 - India's overall arms imports fell by 4.0% between the 2016–2020 and 2021–2025 periods. This decrease is partly attributed to the country's growing capacity to design and produce its own weapons domestically.
- **Top Suppliers:** India's primary arms suppliers in 2021–25 were **Russia (40%), France (29%), and Israel (15%)**.

- **Pivot to the West:** Over the past decade, India has actively shifted its reliance away from Russia and towards Western suppliers, notably France, Israel, and the USA.

4.2.2. GLOBAL TERRORISM INDEX, 2026

Global Terrorism Index, 2026 was recently published by the **Institute for Economics and Peace (IEP)**, a Sydney-based independent, non-profit think tank.

Key Findings

- **Top rank:** Pakistan recorded the highest score, being the country most impacted by terrorism.
 - ~ **70% of deaths** from terrorism occurred in **only 5 countries:** Pakistan, Burkina Faso, Nigeria, Niger, and the Democratic Republic of the Congo (DRC).
- **Substantial fall in terrorism:** Deaths from terrorism fell 28% and number of attacks declined by ~ 22%.
- **4 deadliest terrorist organisations (2025):** IS, Jamaat Nusrat Al-Islam wal Muslimeen (JNIM), Tehrik-e-Taliban Pakistan (TTP), and Al-Shabaab.
- **Indias' rank:** 13th



Read our previous coverage on Terrorism

4.2.3. ADVANCED LIGHT HELICOPTER (ALH) MK-III AND SHTIL MISSILE

Ministry of Defence signed contracts for acquisition of six **ALH Mk-III (Maritime Role)** for **Indian Coast Guard** and **Vertical Launch – Shtil missiles** for Indian Navy.

About ALH Mk-III (MR)

- **Twin-engine helicopters** with state-of-the-art features superior to the **currently operated airborne platforms**.
- Capable of undertaking a wide spectrum of **maritime security missions** from **shore-based airfields as well as from ships at sea**.
- **Signed with Hindustan Aeronautics Limited, Bengaluru** under Buy (Indian-Indigenously Designed Developed and Manufactured) category.

About Shtil missile

- **Surface-to-Air** missile, providing rapid-reaction, all-weather engagement capability and improved survivability in contested maritime environments.
- **Contract signed** with JSC Rosoboronexport, Russian Federation.

4.2.4. MINUTEMAN III

The United States conducted a test launch of Minuteman III.

About Minuteman III

- It is an **intercontinental ballistic missile** part of the US' nuclear triad.
- It is the **nuclear missile land-based weapon** under the control of US Air Force Global Strike Command.
- It has **three solid-propellant rocket motors** with speed of approximately **Mach 23** at burnout.
- **Range:** 6,000-plus miles (5,218 nautical miles).

4.2.5. GRAVITY BOMBS

US said that it would deploy precision gravity bombs in war against Iran.

About Gravity Bombs

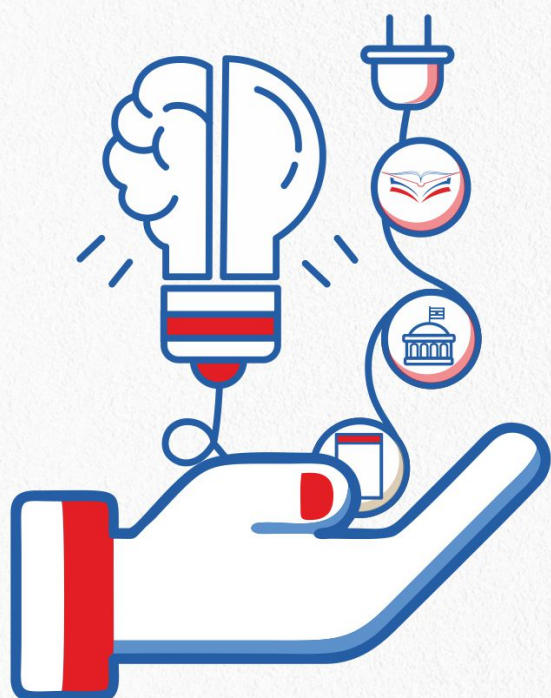
- It historically known as a **“free-fall” bomb**.
- It is an **unpowered munition** that, unlike cruise missiles, does not have an internal engine.

- Once released, its trajectory is **dictated entirely by gravity**, aerodynamics and the speed and altitude of the dropping aircraft.
- It can have both **conventional as well as nuclear explosives**.

4.2.6. EXERCISES IN NEWS

- **Exercise LAMITIYE-2026:** Biennial joint military exercise conducted between **India and Seychelles**.
 - 2026 edition is the first tri-services participation from India.
- **Exercise Sea Dragon 2026:** Annual U.S. Navy-led **multinational anti-submarine warfare (ASW)** exercise.

OPTIONAL SUBJECT CLASSES 2027



- » Political Science and International Relations
- » Public Administration
- » Physics

18 APRIL

- » Sociology

11 MAY

- » Geography

27 APRIL

5. ENVIRONMENT

5.1. ENVIRONMENT IMPACT ASSESSMENT

Why in the news?

Recently **Ministry of Environment, Forest and Climate Change (MoEFCC)** published a draft notification, under **Environment (Protection) Act, 1986 (EPA, 1986)** to amend EIA Notification of 2006, to reduce the delays at state level.

More on the News

- State bodies' (3-year tenure) delayed reconstitution also delays Environmental Clearance (EC) process impacting project timelines and investor confidence.

Key highlights of the draft

- Standing Authority on Environment Impact Assessment (SAEIA) for each state:** To assume functions of State Environment Impact Assessment Authority (SEIAA) for maximum 1 year if it is non-functional or causes delay.
- Standing Committee on Environment Impact Appraisal (SCEIA) for each state:** This committee will perform the duties of the State Expert Appraisal Committee (SEAC) for max 1 year, if it is non-functional.
 - If a SEAC fails to complete an appraisal within 120 days, the proposal moves automatically to the SCEIA via **Parivesh portal**
 - Currently, in the absence of an SEIAA or SEAC, the central level Expert Appraisal Committee (EAC) manages the workload.

Importance of EIA



Integration of Environmental Concerns

EIA integrates environmental concerns into development planning.



Global Commitments

Stockholm Conference and Rio Declaration recognized EIA



Constitutional Mandate

Courts emphasize EIA is integral to the right to life.



Informed Decision-Making

EIA provides authorities with in-depth analysis for decisions



Public Consultations

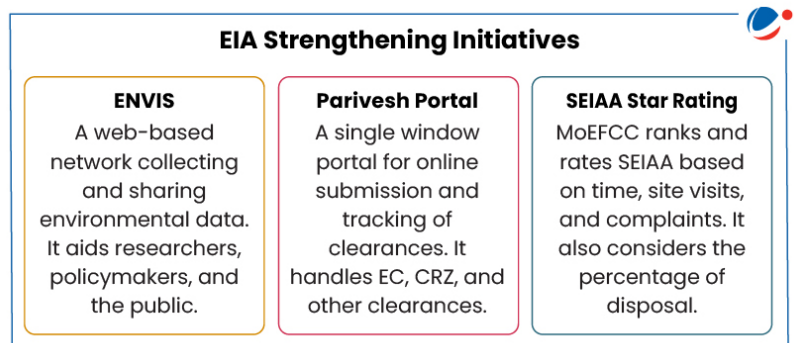
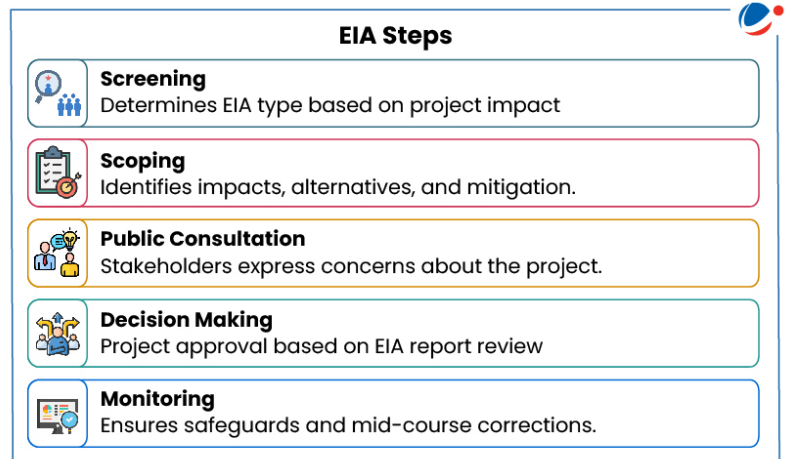
EIA gives voice to stakeholders affected by projects.

About Environmental Impact Assessment (EIA)

- Environment Impact Assessment (EIA) Notification, 2006, under Environment Protection Act 1986** is the principal regulatory framework governing ECs for development projects in India.
 - It is a process to evaluate the potential environmental and social effects, both positive and negative, of a proposed project before it is approved
- Mandatory** for projects above Rs 50 crores.
- Exemptions:** Highway projects of strategic importance, 100 km from the borders, biomass-based Thermal power plants up to 15 MW using eco-friendly fuel mix, Solar and Wind Power projects, Hydro-electric projects less than 25 MW, etc.
- Process:**
 - Category 'A' projects:** Require prior ECs from centre on the recommendations of a 15 membered body i.e.. Expert Appraisal Committee.
 - Category 'B' projects** require prior ECs from the SEIAA on the recommendations of a SEAC and are sub divided in Category B1 and B2 (B2- exempt from EIA).
- Key judgements**
 - Narmada Bachao Andolan v. Uol:** Supreme Court upheld the role of EIA in balancing development and environmental protection.
 - Vellore Citizens' Welfare Forum v. Uol,** Supreme Court recognized 2 principle which are central to EIA i.e. **polluter pays and precautionary principle**.
 - Centre for Environmental Law v Uol 2018:** Court underscored the importance of stakeholder inputs via public consultations in the EIA process.

Challenges faced by EIA process in India

- **Red tapism:** Causing an average delay of 238 days in ECs hampering EoDB.
 - It also leads to **clearances without adequate scrutiny**. E.g. According to Centre for Science and Environment > **90% of projects submitted for clearance are approved**.
- **Gap between paper promises and ground realities:** Eg. Vizhinjam Port Project (Kerala) despite EIA clearance, project faced allegations of coastal erosion and displacement.
- **Poor Quality of Reports: As flagged by court in Sterlite Industries (India) Ltd. V. UoI** due to use of unreliable data, Lack of trained EIA professionals. E.g. **Sardar sarovar project case**.
- **Weak Public Consultation:** Lack of translation of technical reports in local languages, Insufficient information provided to local people e.g. **Dhabol Power plant case**
- **Conflict of Interest:** EIA reports in India are frequently prepared by consultants, hired by project proponents.
- **Prioritization of economic development (EoDB) over ecological sustainability e.g. Draft EIA notification 2020**
 - **Draft 2020** reduces notice period for public hearings from 30 to 20 days, add projects from oil and gas sector etc. to B2 category, excludes public reporting of violations etc.
 - **Retrospective Clearance for some activities:** allows pollute first and forgiveness later as consequences are often irreversible (dilutes precautionary Approach)
- **Transboundary assessment:** This has not been adequately addressed in EIA framework E.g. India has not ratified Convention on EIA in a Transboundary Context (**Espoo Convention 1991**).
- **Others:** Dilution via exemptions, preferring procedural continuity over scientific scrutiny, political interference, weak post-clearance monitoring etc.



Way ahead

- **Strengthening Expert Bodies:** Prioritise timely reconstitution of SEIAA/SEAC with transparent appointment of expert scientists instead of relying on bureaucratic fallback mechanisms.
- **Learn from best practices:** UK's **autonomous monitoring** body to monitor post-clearance compliance and integration of EIA in land use planning
- **Inclusive public participation:** Via longer notice, regional-language reports, and real consideration of community concerns in decisions.
- **Enacting a Standalone EIA Law:** to provide greater legal stability and prevent frequent administrative dilutions **eg. China's Environmental Impact Assessment Law of 2002**.
- **Integrating Strategic Impact Assessment:** While EIA focuses on ecological effects (biodiversity, air, water), **Strategic Impact Assessment** focuses on human impacts (livelihoods, culture, health) which is more holistic in nature.
- **Others:** Integration of tech like Remote sensing, AI etc., **landscape-level approach** (accounts for effects of multiple projects within a region, Independent 3d-party verification etc.

Conclusion

While the MoEFCC's recent draft notification attempts to resolve the immediate bottlenecks of EIA, genuine reform of India's Environmental Impact Assessment (EIA) framework demands a more holistic approach. As both a constitutional mandate and a global commitment, the EIA is fundamentally designed to ensure informed decision-making that balances development with ecological preservation.

5.2. INDIA'S UPDATED NATIONALLY DETERMINED CONTRIBUTION (NDC)

Why in News?

India has recently unveiled its updated **Nationally Determined Contributions (NDCs)** for the period **2031-35** under the **United Nations Framework Convention on Climate Change (UNFCCC)** in line with its obligations under the **Paris Agreement**.

About Nationally Determined Contributions (NDCs)

- They are **voluntary, country-specific climate action plans** under the Paris Agreement aimed at **reducing greenhouse gas emissions** and **adapting to climate change**.
- NDCs are **submitted every five years** to the UNFCCC secretariat.
 - Earlier India submitted its first NDC in 2015, updated it in the year 2022.
- These progressively ambitious targets align with India's long-term goal of reaching **net-zero emissions by 2070** and the vision of building a climate-resilient **Viksit Bharat by 2047**.

About India's NDC Commitments

Commitment Area	Initial Targets for 2030	Updated Targets for 2030	New Targets for 2035	Current Status/Progress
Reduction in Emissions Intensity of GDP (from 2005 levels)	33-35%	45%	47%	36% reduction achieved by 2020
Share of Non-Fossil Fuel Based Electric Power Installed Capacity	40%	50%	60%	52.57% achieved by February 2026
Additional Carbon Sink through forest and tree cover (from 2005 levels)	2.5–3 billion tonnes of CO ₂ equivalent	2.5–3 billion tonnes of CO ₂ equivalent	3.5–4 billion tonnes of CO ₂ equivalent	2.29 billion tonnes equivalent by 2021

Measures Taken Towards Achieving the NDCs

- **Accelerating Clean Energy:** Supported by schemes like the National Green Hydrogen Mission; PM Surya Ghar Muft Bijli Yojana; PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyan); Production Linked Incentive (PLI) schemes for High Efficiency Solar PV Modules etc.
- **Forging international partnerships:** Through initiatives such as International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI); Global Bio-fuel Alliance (GBA); Leadership Group for Industry Transition (Lead-IT) etc.
- **Industrial emission reduction:** Carbon Credit Trading Scheme (CCTS), notified in 2023 under the **Energy Conservation Act, 2001**, laid the foundation for the **Indian Carbon Market (ICM)**.
 - **Greenhouse Gases Emission Intensity Target Rules**, notified under CCTS, set targets for high-emission sectors to reduce their GHG emission intensity.
 - **List of obligated sectors** include Petroleum Refinery, Petrochemicals, Textiles, Aluminium and Secondary Aluminium, Cement, Chlor-alkali, and Pulp & Paper.
- **Enhancing Climate Adaptation:** The **National Action Plan on Climate Change (NAPCC)** alongside State Action Plans (SAPCC) operationalize India's adaptive framework.

- Initiatives include the **National Mission on Sustainable Agriculture**, **Jal Jeevan Mission**, and the **MISHTI scheme** for mangrove restoration.
- **Expanding the Carbon Sink:** Through initiatives like the Green India Mission; Nagar Van Yojana (NVY); National Fund of the Compensatory Afforestation Fund Management and Planning Authority (CAMPA); and the Finance Commission's criteria (which links the devolution of central funds to states based on their forest cover).
- **Energy Efficiency:** Through initiatives like UJALA (Unnat Jyoti by Affordable LEDs for All) scheme, Street Lighting National Programme (SLNP), BEE's Star Labelling Programme; Energy Conservation Sustainable Building Code (ECSBC) for commercial buildings, Eco Niwas Samhita for residential buildings etc.
- **Other measures:** Push for Carbon Capture, Utilization and Storage (CCUS) and nuclear energy; Mission Lifestyle for Environment (LiFE); PAT scheme; etc.

Challenges for India in Achieving NDCs

- **Financial and Technical Constraints:** Scaling up NDCs is inhibited by the lack of adequate low-cost international climate finance and cutting-edge technology transfer free of IPR costs from developed nations.
 - As per NITI Aayog's India Energy Security Scenarios (IESS) 2047, the total investment required for energy transition is estimated at **~USD 250 billion per year till 2047**.
- **Gap between Capacity and Generation:** Although non-fossil fuel sources now account for more than 50% of India's installed power capacity, they contribute to less than 30% of actual electricity generated.
- **Storage and Grid Related Challenges:** The integration of renewable energy into the national grid is constrained by the high cost of large-scale battery storage and a reliance on imported critical minerals (like lithium).
- **Heavy Dependence on Coal:** Coal still continues to account for approximately 55% of India's electricity generation, necessitating just transition for coal producing districts.
- **Land and Environmental Hurdles:** Achieving the ambitious carbon sink targets is difficult due to land scarcity, rapid urbanization, and the long-term challenges of sustaining large-scale afforestation.
 - E.g., Solar can need 300 times as much space as nuclear, and biomass more than 8,000 times.
- **Environmental concerns:** E.g., materials for solar batteries require substantial water extraction and carbon emissions.

Way Forward

- **Mobilizing Climate Finance:** Advocate for international climate funding and technology transfers that fulfils "**Common but Differentiated Responsibilities**" (CBDR-RC) principle, while actively leveraging financial tools like green bonds, blended finance etc.
- **Enhancing the Renewable Energy Ecosystem:** Invest directly in grid infrastructure, energy storage technologies, and green hydrogen development.
- **Bridging the Capacity-Generation Gap:** Boost the efficiency and reliability of renewable sources by promoting hybrid systems that integrate solar, wind, and storage.
- **Strengthening Carbon Sinks:** Expand initiatives in agroforestry, urban forestry, and conservation projects led by local communities.

Conclusion

India's NDC 2031-35 demonstrates leadership under resource constraints, achieving exponential progress (52% non-fossil capacity ahead of schedule) while advocating climate justice. Renewable energy acceleration, carbon sinks, and adaptation investments will help deliver Viksit Bharat 2047 in a prosperous and climate-resilient manner.



**Read our Weekly
Focus coverage
on Climate
Change
Negotiations**

5.3. NATIONAL REPORT BY INDIA ON CONVENTION ON BIOLOGICAL DIVERSITY

Why in news?

Ministry of Environment, Forest and Climate Change (**MoEFCC**), submitted **7th National Report under article 26** of Convention on Biological Diversity (**CBD**) (**mandatory** obligation under CBD)

More on News

- Reports track progress against **23 National biodiversity Targets (NBT)** under updated National Biodiversity Strategy and Action Plan (NBSAP) (2024–30).
- It is the first full assessment of its progress since the adoption of the **Kunming-Montreal Global Biodiversity Framework (KMGBF)**.
- **Whole-of-government and whole-of-society approach:** engages multiple stakeholders like ministries, NGOs, Women, states, Private sector, Indigenous peoples in updating its strategy.



United Nations Convention on Biological Diversity (UNCBD)



Origin: International legally **binding** treaty adopted at UN's Conference on Environment and Development (UNCED), Earth Summit, Rio de Janeiro, Brazil in 1992.

- **Entered in force** in **1993**, and operates under UN Environment Programme (**UNEP**).
- **1st COP: 1994** in Bahamas
- **Sister Conventions:** UNFCCC, UN Convention to Combat Desertification.

Objectives: Conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of benefits arising from utilization of genetic resources.

Membership: **196 Parties** (India became a party in 1994); USA hasn't ratified the convention.

Governing mechanism: Conference of parties (CoP) meets every 2 years to review progress, set priorities and commit to plans.

Financial mechanism: Global Environment Facility (GEF) operates financial mechanism

Mechanisms for Implementation: NBSAPs

Major Protocols:

- **Cartagena Protocol on Biosafety** (adopted in 2000 and entered in force in 2003): to ensure the safe handling, transport and use of living modified organisms
- **Nagoya Protocol on Access and Benefit-sharing** (2010, in force in 2014): aims at sharing the benefits arising from utilization of genetic resources in a fair and equitable way.
 - Eg. Jeevani drug led to a benefit-sharing agreement with royalty to Kani tribe due to their traditional knowledge about Arogyapacha plant
- **Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety** (2010, entered in force in 2018)

- India enacted **Biological Diversity Act, 2002** to give effect to UNCBD.
- **Latest COP 16, Cali Columbia 2024:** operationalised **Cali fund** for sharing benefits from use of Digital genetic data in a fairer way.

Kunming Montreal Global Biodiversity Framework

- **Origin:** 15th Conference of the Parties (**COP 15**) of CBD 2022 (Canada). It replaced the earlier **Aichi biodiversity target** (2011-2020).
- **Aim:** To halt and reverse biodiversity loss by 2030.
- **Nature:** Non-Binding.
- **Financial mechanism:** Global Biodiversity Framework Fund
 - Managed by the **Global Environment Facility** (launched at GEF's 7th assembly, 2023 in Vancouver, Canada).
 - 20% of the fund's resources are earmarked for indigenous people.
- **Key elements:** 4 goals to **protect and restore ecosystem and species health** by 2050 and 23 targets for 2030.

- **Shares benefits fairly:** Equitable sharing of benefits from utilization of **digital sequence information (DSI)** and traditional knowledge associated with genetic resources etc.
- **23 targets include**
 - **30 by 30 target:** 30% conservation of land, sea, and inland water and 30% restoration of various degraded ecosystems by 2030
 - **Financing Target:** Mobilize at least \$200 bn per year; Developed countries to provide developing countries at least \$20 bn/ year by 2025, and \$30 bn/ year by 2030.
 - **Others:** Halving the introduction of invasive species, and \$500 billion/year reduction in harmful subsidies, mobilize at least \$200 billion per year, halve pesticide and hazardous chemical risk.

Key Highlights of the Report

- **Policy & Targets:** All 23 revised NBSAP targets (142 indicators) are on track and align with the KMGBF.
- **Forest & Carbon:** Forest and tree cover increased to 25.17% of geographical area (recorded forest: 23.59%).
 - Forest carbon stock reached 7,285.5 million tonnes (55% is soil organic carbon).
- **Ecosystem Restoration:** 24.1 million hectares (mha) restored or under restoration.
 - India is nearing its Bonn Challenge pledge of 26 mha by 2030.
- **Wetlands:** 98 Ramsar sites as of 2026 (up from 26 in 2014).
 - Ranks 1st in Asia and 3rd globally for Ramsar sites.
- **Populations:** 3,682 Tigers (>70% of global total), 22,446 Elephants, >4,000 Rhinos, and 891 Asiatic Lions.
 - **First Assessments:** Recorded 718 Snow Leopards and 6,327 Riverine Dolphins.
- **Protected Areas:** Covers 5.71% of land area; marine protected areas have also increased.
- **Network:** 574 Wildlife Sanctuaries, 390 Community Reserves, 145 Conservation Reserves, 106 National Parks.
- **Reserves:** 58 Tiger, 33 Elephant, and 18 Biosphere Reserves.
- **Tech Integration:** Uses remote sensing, GIS, and DNA-based tools for monitoring.
 - Parivesh portal utilized for environmental clearances and governance.
- **Agrobiodiversity:** 22 documented agrobiodiversity hotspots.
 - Agroforestry occupies 8.65% of the country's geographical area.

India's comprehensive steps across various KMGBF targets and Goals

1) Spatial Planning and Area-Based Conservation NBT 1&3 PARVESH 2.0 for green clearance Coastal & Wetland Management	2) Ecosystem Restoration & Climate Mitigation NBT 2 & 8 Bonn Challenge 26 million hectares Restoration and Land Degradation Neutrality PM-PRANAM for sustainable use of fertilizer	3) Species Conservation & Genetic Diversity NBT 4 & 17 Species Recovery Programmes Targeted plans for 22 critically endangered species	4) Sustainable Agriculture, Forestry, & Fisheries NBT 5, 9, & 10 Natural and Organic Farming Support for Forest Produce MSP, Minor Forest Produce, Van Dhan Vikas Kendras	5) Pollution Reduction & Invasive Species NBT 6 & 7 National Clean Air Programme (NCAP) Extended Producer Responsibility (EPR) Invasive Species Strategies
6) Urban Ecosystems & Sustainable Consumption NBT 11, 12, & 16 Smart Cities & AMRUT 2.0 Mission LIFE	7) Access and Benefit Sharing NBT 13 Nagoya Protocol Compliance	8) Mainstreaming, Business Accountability, & Finance NBT 14, 15, & 19 Business Responsibility and Sustainability Report (BRSR) Top 1,000 listed entities ESG disclosures Corporate Social Responsibility (CSR) 2% net profit mandate Innovative Finance Sovereign Green Bonds, Green Credit Programme, Carbon Credit Trading Scheme	9) Capacity Building, Technology, & Inclusion NBT 20, 22, & 23 International Big Cat Alliance (IBCA) One Health Mission Gender & Community Empowerment 33% Female representation in governance. Forest Rights Act, PESA	

Key Challenges in Biodiversity Management

- **Limited Progress Clarity:** While govt claims all targets on track, the report identifies only NBT-1 biodiversity-inclusive land and sea-use planning and NBT-2 are identified as being on track.
 - For others, the report provides ongoing initiatives rather than clear projections.
- **Land Degradation:** Despite efforts, ~ 29.77% of India's area is currently undergoing degradation.
 - **Mangrove cover** saw a declined in 2023 wrt 2021.
- **Stagnant Coastal Planning:** Only 3/13 coastal States approved Integrated Coastal Zone Management Plans due to evolving regulatory requirements (FY 2020–24).
- **Data collection issues:** Advancements in satellite technology make it difficult to compare current data with previous assessments, fragmented data across ministries etc.
- **Invasive Species Expansion: Especially** in tiger ranging state eg. **Chromolaena odorata** recorded rise of 70%. **Prosopis juliflora**, **Mimosa diplotricha** also increased.

Conclusion

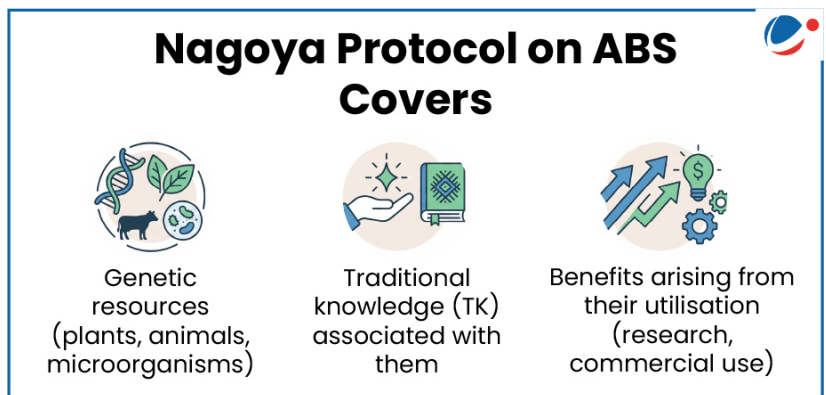
India's 7th National Report to the CBD underscores a nation making significant strides toward its global environmental commitments, yet simultaneously grappling with complex domestic realities. Through its alignment with the Kunming-Montreal Global Biodiversity Framework (KMGBF), India has demonstrated commendable leadership, evidenced by thriving flagship species populations, the rapid expansion of its Ramsar wetland network, and an ambitious push for ecosystem restoration.

5.3.1. INDIA SUBMITS 1ST NATIONAL REPORT ON IMPLEMENTATION OF NAGOYA PROTOCOL

It highlights India's progress in implementing **Access and Benefit Sharing (ABS)** provisions and contributes to **Target 13** of India's updated **National Biodiversity Strategy and Action Plan (NBSAP)**.

About Nagoya Protocol on ABS

- The Nagoya Protocol is a **supplementary agreement** under the **Convention on Biological Diversity (CBD)**.
 - CBD is an **International treaty** adopted at the **UN Conference on Environment and Development (the Rio "Earth Summit")** in 1992 (into force in 1993).
- **Objective:** Ensure **fair and equitable sharing of benefits from genetic resources**, contributing to biodiversity **conservation and sustainable use**.
- **Adopted in 2010 and entered into force in 2014.**
- **Core Obligations**
 - **Access:** Requires Prior Informed Consent (PIC) from provider for accessing biological resources.
 - **Benefit Sharing:** Benefits must be shared fairly & equitably, based on Mutually Agreed Terms (MAT).
 - **Compliance:** Ensures resources are used as per PIC & MAT.
- India implements these provisions through the **Biological Diversity Act, 2002**. It comprises a **three-tier institutional structure** comprising:
 - **National Biodiversity Authority,**
 - **State Biodiversity Boards/Union Territory Biodiversity Councils, and**
 - **Biodiversity Management Committees (BMCs)** at local level.



Key Findings of the Report

- **Implementation Performance:** India issued 12,830 ABS approvals and published 3,556 Internationally Recognised Certificates of Compliance (~60% global share), showing strong implementation.
- **Benefit Sharing Outcomes:** ₹216.31 crore was mobilised, with ₹139.69 crore distributed to communities, farmers, and BMCs.
- **Capacity Building:** Over 2.76 lakh BMCs established at local level, 2.56 lakh individuals trained through 3,724 programmes and 600+ initiatives.
- **Non-Monetary Benefits:** 395 approvals include benefits such as technology transfer, capacity building, and collaborative research.

5.4. INTERNATIONAL SOLAR ALLIANCE

Why in the News?

On March 11, 2026, the International Solar Alliance (ISA) celebrated its 10th Foundation Day.

Significances of ISA

- **Alternative Energy Architecture:** Indian PM envisioned the ISA as an “alternative OPEC,” offering a platform for the equitable production and distribution of energy, breaking the monopoly of fossil-fuel-rich nations.
- **Climate Change Mitigation:** Plays a critical role in achieving Sustainable Development Goals (SDG 7 for clean energy and SDG 13 for climate action).
- **South-South Cooperation:** Serves as a vital diplomatic tool to give a voice to developing, energy-deficient nations (Global South) on the international stage, easing their reliance on fossil fuel imports.
- **Financial & Tech Aggregation:** Aggregates global demand to significantly reduce the cost of solar finance and technologies for Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

Challenges before ISA

- **Funding Constraints:** Raising large sum cannot be generated purely from public resources, and unlocking private commercial capital remains difficult due to perceived risks in developing nations.
- **Trade and Tariff Barriers:** High Most Favoured Nation (MFN) tariffs on solar photovoltaic (PV) cells and modules, especially in African and Pacific island nations, severely hinder cost-effective solar deployment.



About International Solar Alliance (ISA)



- **Genesis:** Jointly launched by India and France in 2015 on the sidelines of the UN Climate Change Conference (COP21) in Paris.
- It is the **first international inter-governmental organization to be headquartered in India.**
- **Objectives:** 'Towards 1000' strategy, aiming to unlock **US\$1 trillion in low-cost solar investments by 2030**, provide clean energy access to 1 billion people, install 1,000 GW of solar capacity, and mitigate 1 billion tonnes of CO₂ emissions annually.
- **Pillars:** The ISA operates on four strategic pillars:
 - **Catalytic Finance Hub** (to mobilize investments),
 - **Global Capability Centre and Digitisation** (fostering innovation and capacity building),
 - **Regional and Country-level Engagement**, and
 - **Technology Roadmap and Policy.**
- **Membership:** Originally restricted to 121 countries lying fully or partially between the Tropics of Cancer and Capricorn; **framework amended in 2020 to open membership to all United Nations member states**; currently **112 Members countries and 14 Signatories countries.**
- **Governance structure:**
 - **ISA Assembly:** Apex decision-making body to assess programs and coordinate actions.
 - **Leadership:** Headed by a President (India) and Co-President (France), along with 8 Vice Presidents representing four regional groups (Africa, Asia-Pacific, Europe & Others, and Latin America & Caribbean).
 - **Secretariat** with Director General
 - **Committee:** 1 Standing Committee and 4 Regional Committees.
- **Key Initiatives under ISA:**
 - **OSOWOG (One Sun One World One Grid)** to connect regional grids,
 - **STAR-C Initiative** (Solar Technology and Application Resource Centres) for capacity building and skill development in developing economies.
 - **2026:** Launch of the **Green Hydrogen and Storage Start-up Challenge 2026** to support innovative startups with mentoring, acceleration, and market access for technology transfer to scale green hydrogen and energy storage solutions globally.

- **Technological & Intermittency Issues:** The "Solar Constancy Problem" (lack of sunlight at night or during bad weather/pollution) necessitates advanced, expensive energy storage technologies which many member states lack.
- **Lack of Domestic Manufacturing:** Many developing countries lack the technical capacities, quality infrastructure, and policies required to manufacture solar equipment independently.

Conclusion

ISA represents a transformative movement toward a sustainable and democratic global energy future, firmly rooted in the Indian philosophy of **Vasudhaiva Kutumbakam** (the world is one family).

For India, sustaining domestic solar growth while actively transforming its "solar soft power" into tangible international partnerships will be crucial in ensuring an equitable, carbon-neutral energy regime for the 21st century.



Read our previous coverage on Solar Energy in India

5.5. MELTING OF GLACIERS

Why in the News?

An ISRO study found that the 2025 Dharali flash flood in Uttarakhand was caused by the sudden collapse of an exposed ice patch in the Srikanta Glacier's nivation zone, not a cloudburst or Glacial Lake Outburst Flood (GLOF).

More in the News

- The study, titled 'Ice-patch collapse and early-warning implications from a Himalayan flash flood: emerging cryo-hydrological hazards under deglaciation', concludes that the collapse of an ice patch on the glacier above Dharali is **linked to deglaciation in the Himalaya**.
- The findings **expand the range of recognised glacier-related hazards in the Himalaya** and identify exposed ice patches as an under-recognised risk from glacier melt.
- **Nivation** is defined as the erosion of the ground beneath and around a snow bank, primarily as a result of alternate freezing and thawing.

Factors Contributing to Melting of Glaciers

- **Global Warming and Climate Change:** The primary driver of glacier retreat, thinning, and mass loss is the steady rise in regional and global temperatures caused by climate change.
- **Black Carbon and Surface Debris:** The accumulation of englacial or supra-glacial debris and black carbon on the ice surface absorbs heat and heavily induces glacial melt.
- **Elevation-Dependent Warming:** Higher altitudes (4,500–6,000 meters) are warming faster than lower regions, exposing most glacier zones to intensified and rapid temperature rise.
- **Loss of Insulating Snow Cover:** Decline in seasonal snow and firn weakens natural insulation, making underlying ice more prone to fragmentation and faster melting.
- **Erratic Weather Systems:** Changing climatic patterns, such as increasingly erratic Western Disturbances, are reducing core winter snowfall and shifting precipitation seasonality.
- **Steep Topography:** Steep longitudinal gradients (exceeding 35°–40°) and narrow valley confinements act as catalysts, transforming minor upstream ice collapses into high-velocity, highly destructive debris surges.

Effects of Deglaciation in the Himalayas

- **Glacial Lake Outburst Floods (GLOFs):** Retreating glaciers leave behind meltwater that forms lakes dammed by unstable moraines (debris and ice).
 - These can breach due to avalanches, earthquakes, or rockfalls, releasing millions of cubic meters of water and debris catastrophically.
- **Cascading Disasters:** Deglaciation destabilizes thermal and hydrological systems, triggering interconnected hazards like permafrost thaw, landslides, debris flows, and rock-ice avalanches

- e.g., Chamoli 2021, Sikkim 2023, Dharali 2025.
- **Water Insecurity:** Shrinking glaciers disrupt sustained meltwater supply, leading to reduced river flows, altered hydrology, and long-term water scarcity affecting millions dependent on Himalayan rivers.
- **Agricultural & Ecological Disruption:** Warmer winters are causing crops (like apples and cherries) to miss vital chilling requirements, resulting in poor yields, earlier outbreaks of pests, and disrupted local ecosystems.
- **Socio-Economic and Infrastructure Destruction:** Flash floods and debris flows damage settlements, farmland, roads, bridges, tourism, and hydropower infrastructure.

Disaster Management

- **Institutional Framework & Government Initiatives**
 - **Nodal Agencies:** The Ministry of Jal Shakti (MoJS) and the Central Water Commission (CWC) act as the nodal bodies for managing glacial studies and GLOF hazards.
 - **National GLOF Risk Mitigation Programme (NGRMP):** A dedicated NDMA initiative (Phase-1 from 2023-2026) targeting high-risk states/UTs: Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, J&K, and Ladakh.
- **Disaster Preparedness & Mitigation Strategies**
 - **Satellite-Based Early Warning:** Detecting exposed ice patches using multi-temporal Earth observation imagery (like Sentinel-2) should be integrated into operational early-warning systems to identify high-risk areas before they collapse.
 - **Multi-Risk Assessment:** Integrating hazard models with vulnerability assessments (population, infrastructure, hydrology) to create GIS-based, multi-hazard risk maps.
 - **Community-Centric Monitoring:** Train local communities, porters, and shepherds to report early warning signs like river turbidity or cracks using mobile-based citizen science platforms.
 - **Bio-Restoration:** Promote moss/algae growth to reduce melting and plant vegetation to stabilize moraines and prevent erosion.
 - **Structural Mitigation Measures (Geo-Engineering):** Reduce glacial lake risks through controlled drainage, siphoning, or tunnelling.
 - **Robust Watershed Management:** Expanding initiatives like the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-WDC) to build check dams, percolation tanks, and farm ponds to enhance groundwater recharge.
 - **Integrated Preparedness Policies:** Ensure coordination across sectors with both short-term contingency and long-term climate strategies.

The ICIMOD Report (Hindu Kush Himalaya Glacier Melting)

- International Centre for Integrated Mountain Development (ICIMOD) revealed that the rate of **glacier melting** across the Hindu Kush Himalayas (HKH) has **doubled** since 2000.
 - HKH region lost **12% of its overall glacier area** and **9% of its total ice reserve** between 1990 and 2020.
- **Basin-Specific Vulnerability:** While the Karakoram range remained relatively stable (2% loss), the **Ganga and Brahmaputra basins** saw alarming glacier area reductions of **21% and 16%**, respectively.
- **Threat to Small Glaciers:** Glaciers smaller than 0.5 square kilometers are shrinking most rapidly.
- **Negative Mass Balance:** Over 50 years of data recorded a negative mass balance (losing more mass than gained).

Conclusion

The rapid retreat of the "Third Pole" is not a distant warning but an **immediate reality** threatening the water, food, and energy security of billions. Addressing this requires **transboundary cooperation, mainstreaming disaster risk reduction in development, and empowering local institutions**. India must integrate advanced geospatial monitoring with community-based adaptation strategies to effectively manage rising cryo-hydrological risks.



Read our previous coverage on GLOF

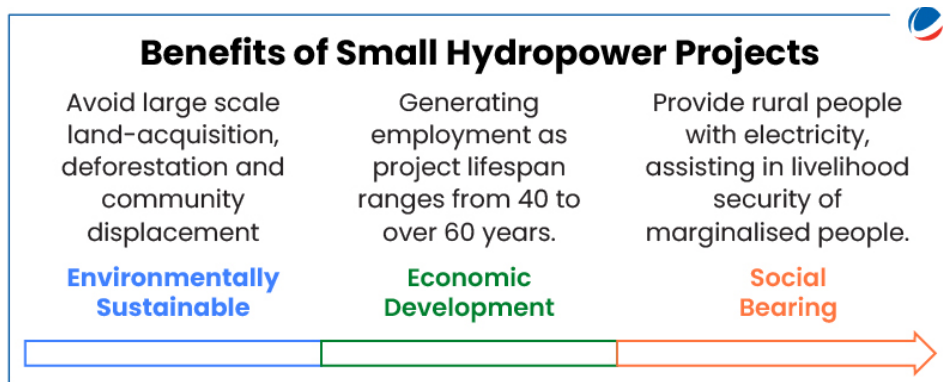
5.6. NEWS IN SHORTS

5.6.1. SMALL HYDRO POWER (SHP) DEVELOPMENT SCHEME APPROVED

The scheme along with bringing in **Rs. 15,000 crore of investment** in SHP would support **51 lakh person days of employment**, especially **benefitting North Eastern (NE) and hilly states** having high SHP potential.

Key Features of the Scheme

- **Duration and Capacity:** FY 2026-27 to FY 2030-31 with an outlay of Rs.2584.60 crore for projects with **approximate capacity of 1500 MW**.
- **Financial Assistance:**
 - **NE & Border Areas:** ₹3.6 crore/MW or 30% of project cost whichever is lower (up per limit of ₹30 crore/project).
 - **Other States:** ₹2.4 crore/MW or 20% of project cost whichever is lower (upper limit of ₹20 crore/project).
- **Detailed Project Report (DPR):** Incentivize state and central government with an allocation of **₹30 crore towards ~200 DPR**.



About Small Hydro Power (SHP) Projects

- Hydro Power plants with **capacity of 25 MW or below** are classified as Small Hydro in India.
 - Could be either **constructed on hill slopes** utilizing small streams involving run of river type projects or on **Canal Falls or Dam Toes**.
- **Ministry of New and Renewable Energy (MNRE)** looks after their development.
- **Estimated Potential: 21133 MW** from 7133 sites for power generation in India (IIT Roorkee.).
 - **Hilly States** mainly Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttarakhand constitute around half of this potential.
- **Classification (Depending on the capacity):** **Micro** (up to 100 kW); **Mini** (101 kW to 2 MW) and **Small Hydro** (2 MW to 25MW).

5.6.2. REPORTS IN NEWS

- **State of the World's Migratory Species: Interim Report (2026):**
 - **Published by:** Secretariat of **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**.
 - **Key Findings:**
 - > Nearly **49%** of CMS-listed migratory species show **declining populations**.
 - > About **24%** of migratory species protected under CMS are globally **threatened with extinction**.
- **UN World Water Development Report 2026:**
 - **Published by:** UN-Water base on the **World Water Day 2026** theme 'Water and Gender'.
 - **Key Findings:**
 - > **Lack of access:** 2.1 billion people still lack access to safely managed drinking water globally.
 - > **Gender Gap:** Women and girls are **primary collectors of water**, spending over **250 million hours daily**, limiting their **access to education, income**.

5.6.3. SDG BULLETIN REPORT ON PROSPERITY

MoSPI released report titled **Delivering Prosperity at Scale: India's Economic Transformation through the SDGs**.



Read our Weekly Focus coverage on SDGs

Key Achievements highlighted in Report

Sphere	Key Progress	Initiative Taken
Energy & Electrification (SDG 7)	Near-universal electrification achieved with coverage increasing from 99.77% to 100%	Saubhagya, DDUGJY, UDAY
Renewable Energy (SDG 7)	Share in installed capacity increased from 16.02% to 22.13% (2015–16 to 2024–25) Fourth-largest global wind energy producer .	National Solar Mission, PM-KUSUM, PLI Solar PV, Green Energy Corridor, National Green Hydrogen Mission, PM Surya Ghar
Digital Connectivity (SDG 9):	Mobile coverage expanded to 99.28% of the population	BharatNet, Digital India, USOF/DBN
Waste Management & Sanitation (SDG 11)	Door-to-door waste collection increased from 43% to 97.7%; waste processing reached 80.7%,	Swachh Bharat Mission (Urban & Rural), GOBARdhan
Inequality & Financial Inclusion (SDG 10)	Decline in Gini coefficient in rural and urban areas (between 2011–12 and 2023–24)	PMJDY, DBT ecosystem, NFSA, PM-JAY
Tourism & Economic Recovery (SDG 8)	Tourism sector recorded 227.48% growth in GDP contribution post-pandemic	Swadesh Darshan, PRASHAD, e-Visa, UDAN
Power Sector Carbon Intensity (SDG 9)	Carbon intensity has declined consistently from 61.45 tonnes CO ₂ / ₹ crore in 2015–16 to 40.52 tonnes in 2022–23	Perform, Achieve and Trade (PAT) Scheme

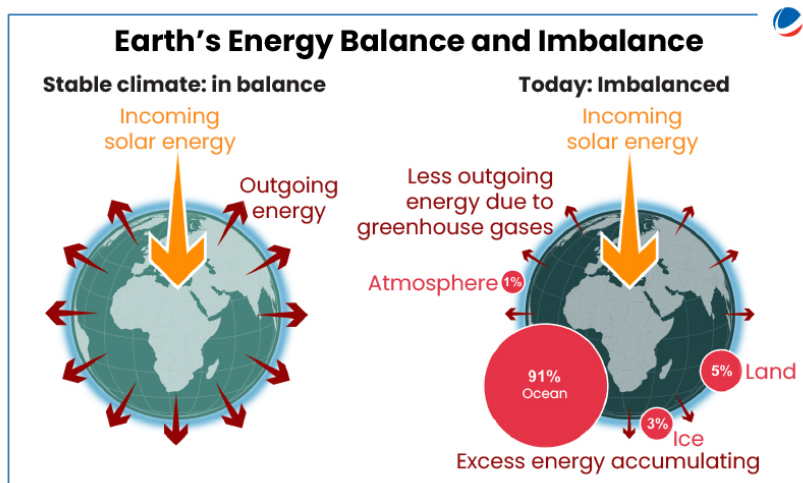
5.6.4. EARTH'S ENERGY IMBALANCE REACHED 65-YEAR PEAK: WMO

The findings were part of 'State of the Global Climate 2025' report, released by World Meteorological Organization (WMO) on World Meteorological Day (23 March, theme-Observing Today, Protecting Tomorrow).

- It included **Earth's energy imbalance (EEI)** as one of the **key climate indicators** for the first.

About EEI

- It is the difference between amount of **energy the Earth receives from the Sun** (incoming solar radiation minus reflected solar radiation) and **amount of energy the Earth radiates back into space** (outgoing long-wave radiation). (see infographic)
 - "**Positive**" EEI: Earth is gaining energy and heating "**Negative**" EEI: Earth is losing energy and cooling
- EEI **measures rate of the heat accumulation** by anthropogenic GHG emissions in climate system and **provides a comprehensive picture of warming**.
- Reasons for increase in EEI:** Rising concentrations of GHG; reductions in aerosol emissions; increases in trace gases and water vapour (decreases outgoing long-wave radiation); decreased reflection by clouds and sea ice.



Other Key findings of the report

- **2025 was 2nd or 3rd warmest year** on record at **about 1.43 °C above the 1850-1900 average**.
- **2015-2025** are the **hottest 11-years** on record.
- **Highest level of Atmospheric concentration of CO₂** recorded in 2024 in the last 2 million years.
- **Ocean heat content** reached a **new record high** in 2025.

5.6.5. NATIONAL HIGHWAYS GREEN COVER INDEX

NHAI, in collaboration with National Remote Sensing Centre (NRSC) of ISRO, released the inaugural **NH-Green Cover Index (GCI)** for 2025–26.

Key highlights of the Index

- **Coverage:** ~30,000 km of National Highways across 24 states for the period between July and December 2024.
 - It will track **year-on-year green cover improvements**.
- **Satellite-based methodology:** by detecting **chlorophyll content** via high-resolution satellite sensors of **Resourcesat-2/2A** and **Cartosat-2S**.

5.6.6. NATIONAL PRODUCTIVITY COUNCIL (NPC)

NPC signed an Agreement with **Ministry of Environment, Forest and Climate Change** to act as **Environment Audit Designated Agency (EADA)** under **Environment Audit Rules, 2025**.

- It entrusts NPC with overall management of environmental audit framework, including development of **eligibility criteria, registration of auditors, performance monitoring**, etc.

About NPC

- **Gensis: 1958** to undertake research in productivity.
- **Ministry: Autonomous organization** under Department for Promotion of Industry & Internal Trade, **Ministry of Commerce and Industry**.
- NPC is a constituent of **Tokyo-based Asian Productivity Organisation (APO)**, an Inter-Governmental Body of which **India is a founding member**.

5.6.7. BUREAU OF ENERGY EFFICIENCY (BEE)

Bureau of Energy Efficiency (BEE) commemorates **25th Foundation Day**.



Bureau of Energy Efficiency
Ministry of Power, Government of India

Bureau of Energy Efficiency (BEE)



Genesis: Established as the **statutory body** under **Energy Conservation Act, 2001**.



Ministry: Set up under the **Ministry of Power**.



Objective: Reduce **energy intensity, improve energy security, and mitigate climate change** through efficient energy use.



Major Programmes of BEE:

- **Standards and Labelling (S&L) Programme:** Products receive star labels (1–5 stars) showing energy efficiency.
- **Energy-Efficient Lighting Programmes:** Promotion of LEDs.
- **Perform, Achieve and Trade (PAT) Scheme (2012):** A **market-based mechanism to improve energy efficiency** in energy-intensive industries.

5.6.8. MC MEHTA CASE

The Supreme Court formally disposed of the landmark 1985 PIL filed by environmentalist MC Mehta.

- In MC Mehta case, Supreme Court recognized the **principle of Absolute Liability** and applied **Doctrine of Public Trust** to natural resources.
 - It also led to **lead free petrol** in India, coastal management plans in states, shifting of stone crushers out of Delhi etc.

Other Landmark Environmental Cases

- **T.N. Godavarman Thirumulpad Case (1995)** - Expanded the definition of forest land to include all areas recorded as forests in government records, regardless of ownership.
- **Vellore Citizens Welfare Forum Case (1996)** - Recognized the Precautionary Principle and the Polluter Pays Principle as essential features of Indian environmental law.
- **S.P. Muthuraman Case (2025)**- SC declared post-facto or retrospective environmental clearances illegal.

5.6.9. OCEAN THERMAL ENERGY CONVERSION

The Government of India is establishing a first-of-its-kind integrated plant based on Ocean Thermal Energy Conversion (OTEC) in **Kavaratti Island, Lakshadweep**.

About Ocean Thermal Energy Conversion (OTEC)

- Renewable energy technology that generates electricity using the **temperature difference** between warm surface water and cold deep ocean water.
- **Condition:** Requires about 20°C temperature difference; viable mainly in tropical oceans (30°N–30°S).
- **Working:** Cold deep-sea water and warm surface water run a heat engine to produce electricity.
- **Use:** Provides round-the-clock power and desalination for island regions.

5.6.10. DARK OXYGEN

Scientists have reported the discovery of “dark oxygen” production nearly 4,000 m deep in the Pacific Ocean.

About Dark Oxygen

- Oxygen produced in the deep ocean without sunlight, unlike photosynthesis-based oxygen production.
- **Source:** Linked to **electrochemical reactions involving polymetallic nodules** on the ocean floor.
- **Significance:** Challenges the belief that **photosynthesis is the only major natural source of oxygen** on Earth.

5.6.11. SHIPKI LA PASS

Trade between India and China will commence from June 1 through the Shipki La Pass in Himachal Pradesh.

- Trade through the pass was disrupted following the Doklam standoff and the COVID-19 pandemic.
- In 2025, India and China agreed to re-open border trade through the three designated trading points, namely **Lipulekh Pass** (Uttarakhand), **Shipki-La Pass** and **Nathu-La Pass** (Sikkim).
 - **Lipulekh Pass** is located close to the tri-junction of India, China (Tibet) and Nepal.

About Shipki La Pass

- It connects **India** and **Tibet** (China).
- It was earlier known as Pema La, or Shared Pass.
- The **Sutlej** River enters India at Shipki La.

5.6.12. ROSSBY WAVES AND WET BULB TEMPERATURE

A Study shows **Rising sea surface temperatures** in coastal waters are leading to 50–64% rise **humid heatwaves** over land, aggravated by **atmospheric Rossby wave trains**.

- **Humidity spikes wet bulb temperature** which above 31.5°C is harmful as the body is no longer able to cool itself by sweating.
- **Wet-bulb temperature** is the lowest temperature to which air can be cooled by the evaporation of water.

About Rossby Waves

- They are **huge, undulating movements** of the atmosphere that stretch horizontally across the planet in a westward direction.
- They are **triggered by Earth's rotation and ocean-land temperature differences**.
- **Stalled** Rossby winds trap hot, humid air over the region, leading to heatwaves.



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6. SOCIAL ISSUES

6.1. PASSIVE EUTHANASIA

Why in the News?

In the landmark judgment of **Harish Rana v. Union of India & Ors (2026)**, the Supreme Court, for the first time, permitted **withdrawal of life-supporting care** for a man who has been in a vegetative state for the past 13 years.

Key Highlights of Judgement

- SC **waived the usual 30-day consideration period** as the patient's parents and medical boards unanimously agreed that recovery was impossible.
- The judgment is governed by the **best interests of the patient principle**.
 - SC ruled that **Clinically Assisted Nutrition and Hydration (CANH)** is a medical treatment that may be lawfully withdrawn if it serves no therapeutic purpose and only prolongs a vegetative state.

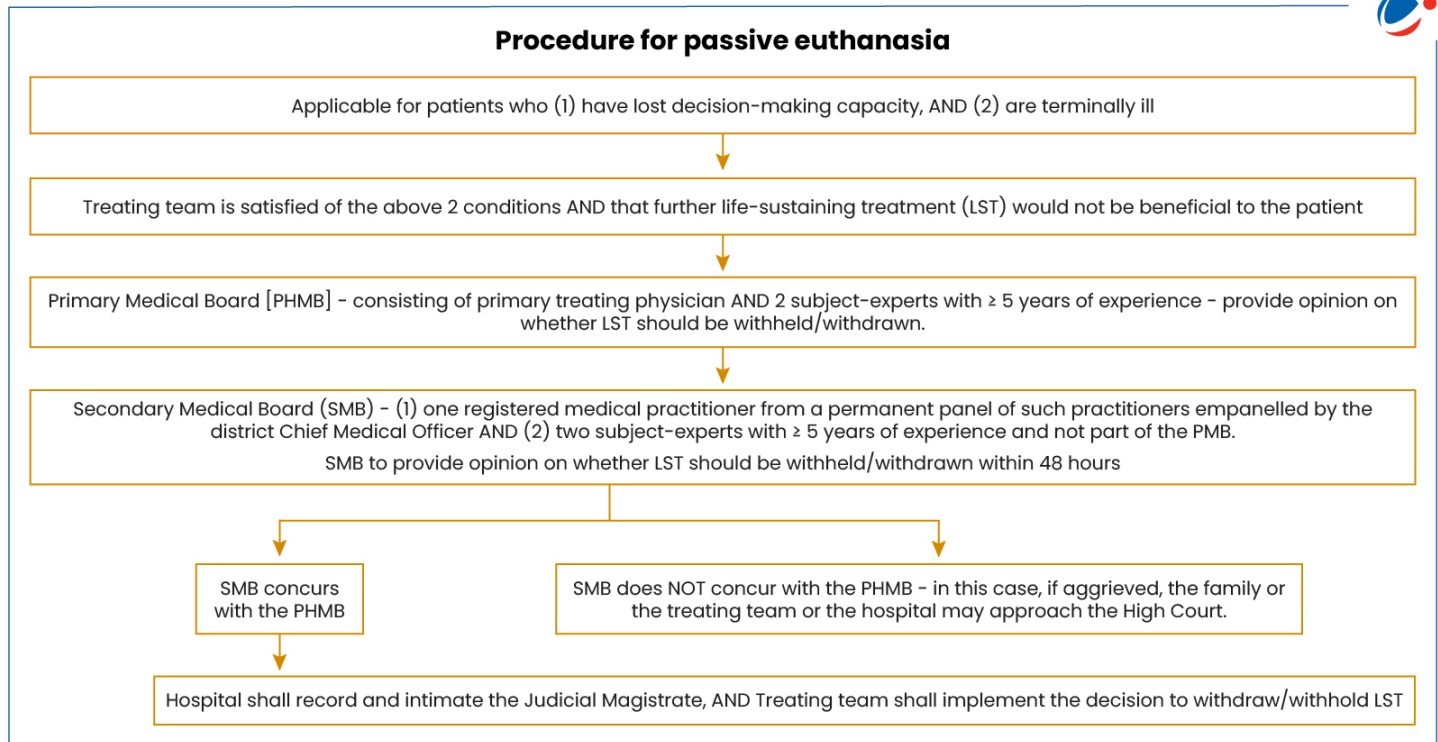
About Passive Euthanasia

- Euthanasia refers to the hastening of a patient's death to relieve suffering. It is broadly classified into **two types**, i.e. **Active and Passive Euthanasia**.
 - **Active euthanasia is the deliberate, direct act** of causing a patient's death to end suffering, usually by administering lethal medication.
 - > It is **illegal in India** but legal in countries such as the Netherlands, Belgium, Canada, Australia, etc.
- **Passive euthanasia** means allowing a person to die naturally by withholding life-sustaining treatment such as cardio-pulmonary resuscitation, ventilator support, specialised nutrition, etc.
 - Passive euthanasia is further **classified as voluntary and non-voluntary**.
 - > **Voluntary euthanasia** is where consent is taken from the patient.
 - > **In non-voluntary euthanasia**, consent is unavailable on account of the condition of the patient (E.g. Harish Rana case, 2026).

Legal Status of Passive euthanasia

- **Maruti Shripati Dubal v. State of Maharashtra (1987)**: The court said that the right to die is part of the right to live under Article 21 and said that Section 309 IPC (related to suicide) is not constitutional.
 - It was changed in **Gian Kaur v. State of Punjab (1996)** by the Supreme Court.
 - > SC said that Section **309 IPC is constitutional** and the right to life includes the **right to live with dignity**, but not to die too soon
- **Aruna Ramchandra Shanbaug case (2011)**: SC rejected a plea for euthanasia, but allowed passive euthanasia under strict conditions for terminal and irreversible patients.
- **In Common Cause Judgment (2018)**: SC recognised it and held that the right to die with dignity is a fundamental right under Article 21.
 - In this case, it laid down guidelines for it and **recognised the concept of a 'living will'**, with oversight involving DMs, judicial officers and medical specialists.
 - > A living will refers to a **written document that a person uses to give his explicit instructions in advance** about medical treatment to be administered if he becomes incompetent or is unable to communicate.

• **Modified Guidelines issued by the SC in 2023**



Arguments in favour of Passive Euthanasia

- **Patient Autonomy:** It upholds the **patient's right to make decisions** about their own life and death and **upholds their right to die with dignity**, as upheld by the SC in Common Cause vs. Union of India (2018) case.
- **Ensures Dignified Death:** It prevents prolonged artificial survival in a vegetative or terminal state through life-sustaining treatment, aligning with humane values.
- **Reduces Suffering:** It can **avoid unnecessary pain caused by treatment like chemotherapy** in terminal illnesses like end-stage cancer, and is supported by the **ethical principle of beneficence** (acting in the patient's best interest).
- **Reduced burden:** It alleviates the emotional and financial burdens of prolonged life-sustaining treatments such as ventilators, ICUs, etc.
- **Legal Clarity:** Judicial recognition along with clear guidelines on Passive Euthanasia provides a structured framework (medical boards, consent procedures), reducing ambiguity for doctors and families.

Arguments against Passive Euthanasia

- **Misuse and Coercion:** There is a risk that family members may **unduly influence decisions for inheritance, financial relief, or reducing caregiving responsibilities**, thereby exposing vulnerable groups (elderly, disabled etc.) to exploitation.
- **Sanctity of Life vs. Autonomy:** Many moral and religious traditions consider life sacred and oppose any form of hastening death, which can create tension between individual rights and societal ethical values.
- **Weak Institutional Safeguards:** Implementation challenges such as lack of awareness about living wills, limited ethics committees etc. may lead to **risk of procedural lapses**.
- **Diagnostic and Prognostic Uncertainty:** Medical science is not infallible, and cases of unexpected recovery exist. An incorrect prognosis may result in irreversible and premature end-of-life.
- **Non-maleficence:** Principle of non-maleficence (do no harm), aligned with Hippocratic Oath—emphasizes that medical professionals must not cause harm to patients.

Way ahead

- **Multi-Tier Medical Decision Framework:** Institutionalisation of Primary and Secondary Medical Boards to ensure independent, expert-driven, and objective assessment of the patient's condition.
- **Application of 'Best Interest of Patient' Principle:** Decisions must holistically **evaluate medical factors** (irreversibility, futility of treatment) **along with non-medical aspects** (dignity, suffering, wishes of caregivers) to ensure ethically sound outcomes.
- **Defined Role of State and Administrative Machinery:** Governments should facilitate the implementation of Common Cause Guidelines more effectively through:
 - Nominate officials in local government as the Custodianship of Living Will.
 - Clear directions for the constitution of medical boards to hospitals.
 - Empowering CMOs to nominate competent medical practitioners.
- **Oversight and Review Mechanisms:** Provision for reconsideration periods, **supervisory judicial intervention** (in case of disagreement), and **institutional checkpoints** to prevent misuse and ensure procedural fairness.
- **Promotion of Palliative Care:** Withdrawal of treatment should not mean abandonment but a shift to supervised **palliative and end-of-life (EOL) care that relieves pain, manages symptoms**, and preserves dignity with minimal suffering.
- **Legislative Backing:** SC urged the Central Government to consider enacting a comprehensive legislation on EOL care and passive euthanasia, which can be considered.

6.2. TRANSGENDER PERSONS (PROTECTION OF RIGHTS) AMENDMENT ACT, 2026

Why in the news?

Recently, President has given assent to the Transgender Persons (Protection of Rights) Amendment Act, 2026.

Key Changes in Transgender Persons (Protection of Rights) Amendment Act, 2026

- It aims to **amend the Transgender Persons (Protection of Rights) Act, 2019**.

Aspects	Detail
Revised Definition of Transgender Persons	• A person having socio-cultural identities (kinner, hijra, aravani, jogta or eunuch), biological variations, including those forced to outwardly present transgender identity through mutilation, emasculation, castration, surgical, chemical or hormonal procedures. • It excludes self-perceived gender identities or sexual orientations. • It omits Section 4(2) of 2019 Act, removing the legal recognition of self-determination.
Issue of Certificate of Identity	• District Magistrate will issue the certificate after examining the recommendation of a designated medical board.
Verification Authority	• Establishes a Medical board (headed by a Chief Medical Officer (CMO) or Deputy CMO) to assist authorities in verifying transgender identity. ○ Under 2019 Act, a person could obtain a Certificate of Identity from District Magistrate based on self-perceived identity, without any medical examination.
Change in Gender	• Concerned medical institution must furnish information regarding gender change surgery to the District Magistrate.
National Council for Transgender Persons	• Modifies the composition to ensure representation from State Governments and UTs on a rotational basis, one each from North, South, East, West and North-East regions. • Representatives must now have a minimum rank of Director in the relevant Ministry or Department.

Offences and Penalties	The Act adds certain offences. • Kidnapping and causing grievous hurt or severe injury to force a person to assume a transgender identity. • Forcing a person to present as a transgender person and engage in begging, servitude or bonded labour will be punishable.
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Significance of Transgender Persons (Protection of Rights) Amendment Act, 2026

- **Improved Implementation:** Revised definition and identification process may help **remove ambiguities in 2019 Act**, reportedly making the law easier to enforce.
- **Stronger Legal Safeguards:** Introduction of **graded punishments** for serious crimes strengthens protection against exploitation and violence.
- **Protection of Bodily Integrity:** By penalising forced identity changes and bodily harm, bill reinforces the **constitutional principle of dignity and bodily autonomy**.

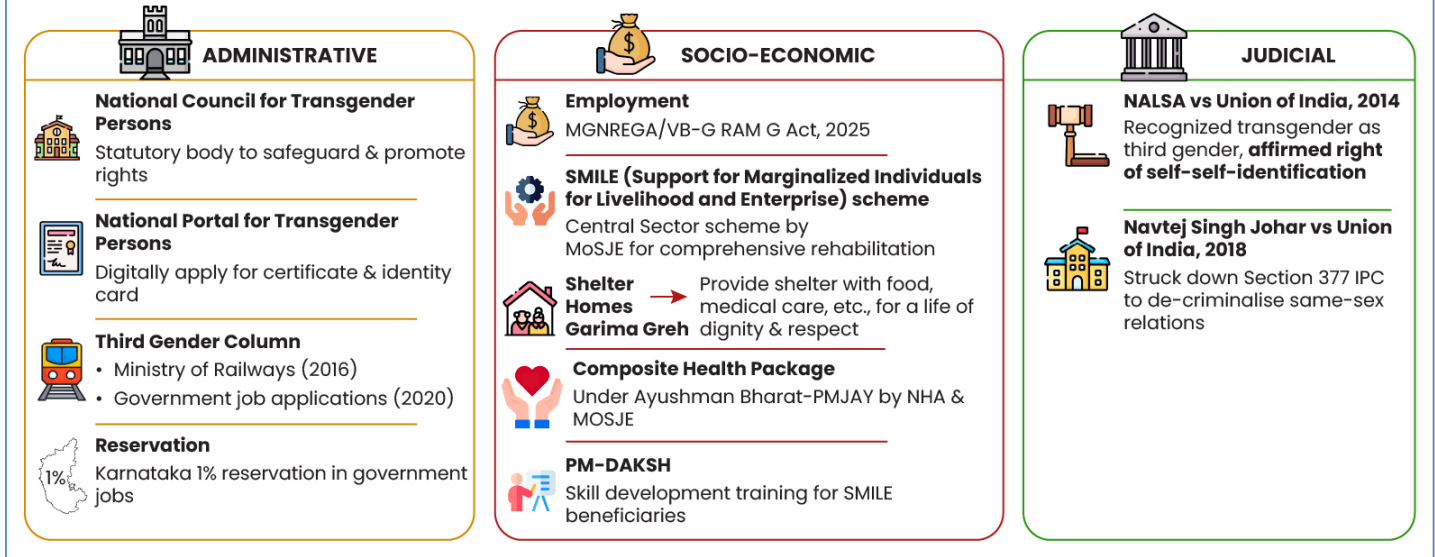
Issues associated with Transgender Persons (Protection of Rights) Amendment Act, 2026

- **Loss of Right to Self-Identification:** The shift from self-identification to **institutional validation undermines person's autonomy and dignity** in identity determination.
- **Exclusion due to narrow Definition:** Unlike the 2019 Act, the Bill effectively **exclude trans-men, non-binary people, and gender-queer individuals** from legal protection.
- **Bureaucratic Barriers:** Identity recognition depends on a Medical examination and a recommendation to the District Magistrate, which may lead to **delays, discretion, and risks of exclusion**.
- **Medical gatekeeping:** Bill mandates **surgery or hormonal treatment** and **approval by a medical board** for legal recognition, **undermining personal autonomy** under Article 21.
- **Legal disparity:** It treats sexual abuse of transgender persons on par with minor offences and prescribes only up to 2 years' punishment, unlike harsher penalties for rape of cisgender women, reflecting discriminatory and unequal legal protection.

Other Issues associated with Transgenders in India

- **Data Deficiency:** 2011 Census estimated 4.8 lakh transgender persons, but actual numbers likely higher, due to societal prejudice, lack of clear definition of transgender leading to underreporting.
- **Educational Exclusion:** The total literacy rate has been reported to be 56.1% among transgender persons, as against 74.04 % of the national average (Census of India, 2011).
- **Economic Marginalization:** As per NHRC (2018), nearly **96% of transgender persons face discrimination in employment, with only about 6% engaged in formal sector jobs**.
- **Healthcare Barriers:** Transgender individuals face **restricted access to gender-affirmative healthcare**, with around **27% reportedly being denied medical services** due to their gender identity (NALSA).
 - HIV prevalence among transgender persons is 3.8% ($\approx 20\times$ national average).
- **Human Rights Violations:** Trans persons face physical, sexual, and verbal abuse due to widespread trans-phobia and institutional discrimination.

STEPS TAKEN TO EMPOWER TRANSGENDER PERSONS



Way ahead

- **Regular Survey:** Conduct a **dedicated national survey or Census update on transgender population**, and use data-driven policymaking for targeted welfare delivery.
- **Legal & Institutional Reforms:** Law can be aligned with the **Yogyakarta Principles (YP)** by ensuring that gender recognition is based on self-identification, without mandating any medical procedures.
 - YP address the broad range of **human rights standards** and their application to issues of sexual orientation and gender identity.
 - YP were set up as a lot of 29 Principles with 29 signatories including India, USA, UK, etc. **YP plus 10** was adopted in 2017.
- **Awareness generation:** Introduce **gender-sensitization curriculum in schools and colleges**, provide scholarships, hostels, and nationwide campaigns to reduce social stigma and generate awareness.
- **Healthcare Reforms:** Incorporate **LGBTQIA+ inclusive content in pre and in-service training** for health professionals, and expand mental health services and HIV prevention programs.
- **Economic Empowerment:** Private sector participation can be encouraged through **diversity-focused hiring incentives and tax benefits**, while promoting self-employment and SHGs to ensure sustainable livelihood opportunities for transgender.

6.3. CHILD ADOPTION

Why in the news?

Recently, Central Adoption Resource Authority (CARA) has issued memorandums to all State Adoption Resource Agencies (SARAs) across States and Union Territories (UTs) to **reinforce compliance with adoption procedures**.

More on the news

- These directions have been issued in accordance with provisions of the Juvenile Justice (Care and Protection of Children) Act (JJ Act), 2015 (as amended in 2021) and Adoption Regulations, 2022.
- **Key Directions**
 - **Mandatory Strict due process:** No orphan or abandoned child can be **declared legally free for adoption** without completion of due inquiry, tracing of biological parents within prescribed timeframe.
 - > In cases of **surrendered children**, mandatory **reconsideration period of two months** must be strictly followed before the child can be declared legally free for adoption.

- **Record management:** All adoption records to be securely preserved and properly transferred, even if institutions shutdown.
- **Prohibition on disclosure of child identity:** States/UTs ensure **strict compliance with Section 74 (JJ Act 2015)**, prohibiting identity disclosure of children in conflict with law or children in need of care/ protection.

Child Adoption in India

- **CARA** is a **statutory body** under **Ministry of Women and Child Development** that functions as **nodal body for adoption of Orphan, Abandoned and Surrendered Children** through its associated /recognised adoption agencies.
 - **CARA was established in 1990** and was later granted statutory status under the JJ Act 2015, CARA monitors In-country (domestic) adoptions.
 - It is also **designated as Central Authority** to deal with **Inter-country (international) adoption** in accordance with the provisions of **Hague Convention on Inter-country Adoption, 1993** (Ratified by India in 2003).
 - CARA also **facilitates Relative Adoption, Adoption by Step Parents and Foster Adoption**.
- SARA, Child Welfare Committees (CWCs), and District Child Protection Units (DCPU) are responsible for adoption at the state or local level.

Framework of Child Adoption in India

- **Hindu Adoption and Maintenance Act (HAMA), 1956:** Permits adoption to **Hindus, Buddhists, Jains, and Sikhs**. Parents **adopting a child under HAMA** are **not required to register adoption deed with CARA**.
 - **Guardians and Wards Act, 1890:** Governs guardianship, particularly for Muslims and Christians, as their personal laws do not recognise full adoption.
- **JJ Act 2015:** Provides for a comprehensive framework for adoption to everyone.



Data Bank

As per Children in India 2025 Report,

- Total adoptions **increased** from 3,927 (2017-18) to **4,515 (2024-25)**.
- **In-country adoptions:** 4,155 in 2024-25
- **Inter-country adoptions:** 360-653 annually.

ADOPTION REGULATIONS, 2022: KEY HIGHLIGHTS

- 1 **UPPER AGE LIMITS REDUCED** (For child < 2 years)
 - Couples:** Combined age reduced to 85 years max.
 - Single PAP:** Max age 40 years.
 - (Min. age difference with child must be ≥ 25 years)
- 2 **EXEMPTIONS FOR SPECIFIC ADOPTIONS**
 - Age criteria do NOT apply to **Relative Adoptions** or **Step-parent Adoptions**.
- 3 **HOME STUDY REPORT (HSR) REVALIDATION**
 - PAPs must revalidate their HSR after three (3) years
 - Irrespective of biological children or marital status
- 4 **ELIGIBILITY & CONSENT**
 - Married Couples:** Both spouses must give **CONSENT** for adoption.
 - Single Parents:** Single **Female** can adopt **any gender**. Single **Male** **NOT** eligible to adopt a **girl child**.

MODEL FOSTER CARE GUIDELINES (MFCG), 2024: KEY HIGHLIGHTS

- 1 **FOSTER PARENT ELIGIBILITY EXPANDED**
 - NOW:** **ANY** person (regardless of marital status, with/without biological children) can foster.
 - (Previous MFCG 2016: Only married couples eligible)
- 2 **GENDER SPECIFICATIONS**
 - Allows **SINGLE FEMALES** to foster and adopt a child of **ANY gender**.
 - SINGLE MALES** can only foster and adopt **MALE** children.
- 3 **MARITAL STABILITY**
 - Spouse/Couples must have a stable marital relationship for **at least 2 years**.
- 4 **FOSTER-TO-ADOPT TIMELINE**
 - Foster parent can adopt the same child after **FOSTERING FOR MIN. 2 YEARS** (formerly 5 years)

Initiatives taken to improve Child Adoption in India

- **CARINGS (Child Adoption Resource Information and Guidance System) portal:** Maintained by CARA and ensures transparency in adoption process.
 - It was designed, developed, deployed by National Informatics Centre.
 - Children will be registered on CARINGS portal in **5 categories i.e. Orphan, Abandoned, Surrendered, No Visitation, and Unfit Guardians.**
 - CARINGS portal has been **integrated with unified Mission Vatsalya portal.**
 - > Mission Vatsalya Portal serves as a unified, secure digital platform for managing child protection services, integrating data on missing, orphaned, abandoned, and surrendered children.
- **Identification Cell:** Set up to **identify adoptable children in Child Care Institutions** and expedite their declaration as legally free for adoption.

Challenges associated with the process of Child Adoption in India

- **Legal and Procedural Complexities:** Adoption is governed by **multiple laws** such as JJ Act, 2015 and personal laws like HAMA, 1956 leading to **overlapping jurisdictions.**
- **Demand Supply Mismatch:** The number of prospective adoptive parents increased from 26,734 (2021) to 36,381 (2025), while **children legally free for adoption rose marginally** from 2,430 to 2,652.
- **Delays in Processes and Identification:** Slow inquiries, **prolonged court processes**, and **weak inter-agency coordination** delay adoption.
 - In 2024, only 3,684 children were declared legally free, with just 2,177 entering the adoption pool, highlighting administrative bottlenecks.
- **Increasing Waiting Periods:** The average waiting time for prospective parents is nearly 3.5 years by 2025, which may drive illegal adoption in India.
- **Low Adoption of Special Needs Children:** **Adoption of children with disabilities remains minimal**, with only around 313–328 such adoptions (about 7% of total) in 2024–25.
- **Preference bias:** Many parents **prefer children aged 0–2** and are **reluctant to adopt older children.**

Way ahead

- **Legal Harmonisation:** Streamline overlapping provisions under JJ Act 2015, and HAMA 1956 to **create a uniform, child-centric legal framework.**
- **Introduce single-window digital clearance systems:** To reduce documentation and procedural delays and shorten the adoption waiting period.
- **Institutional Capacity:** Increase staffing, training, and digital infrastructure to ensure efficient case handling and monitoring, and to **strengthen coordination among CWCs, Specialised Adoption Agencies, and CARA.**
- **Promoting Adoption of Special Needs and Older Children:** Provide financial incentives, medical support, and post-adoption care schemes for families adopting special needs children.
 - Further, generate awareness through campaigns like National Adoption Awareness Month (November) to reduce stigma and build parental preparedness.
- **Post-Adoption Support Systems:** Provide counselling, follow-up services, and grievance redressal mechanisms for adoptive families, to ensure long-term integration and well-being of adopted children.

Related News: Maternity Benefit for Adoptive Mothers

- Supreme Court held that **Section 60(4) of Social Security Code, 2020** (previously Section 5(4) of Maternity Benefit Act, 1961), which allow **maternity benefit to an adoptive mother only if the adopted child is less than 3 months of age, is unconstitutional.**
 - An adoptive mother had the same rights and obligations towards the child as a biological mother.
 - Now, **adoptive mothers** could avail themselves of **12 weeks of paid maternity leave regardless of age of their children at the time of adoption.**
- **Maternity Benefit (Amendment) Act 2017**
 - Extended the period of **paid maternity leave for biological mothers to 26 weeks**, and

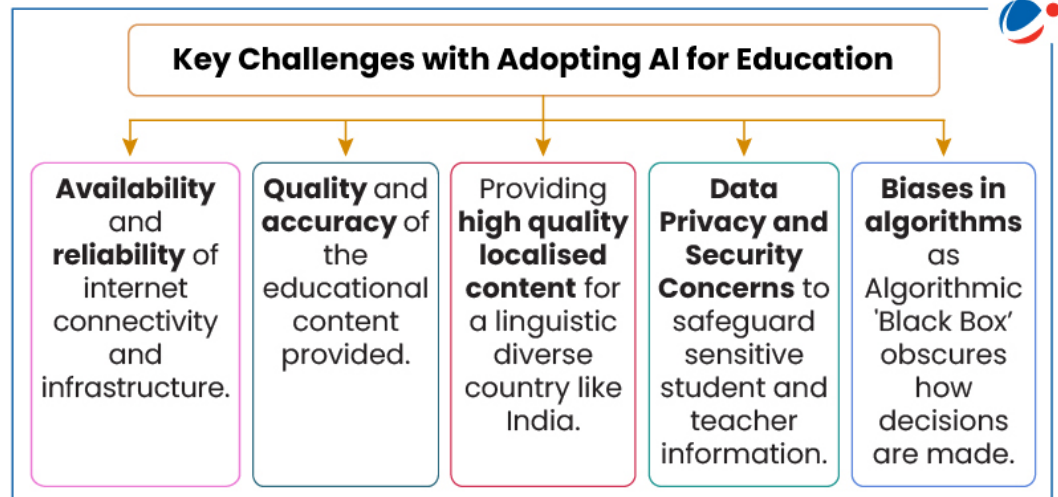
- **Inserted** a provision extending **maternity leave to adoptive mothers or surrogate mothers** but with conditions.
- **Key observations of SC**
 - Maternity benefit operated as an **instrument of “de-familisation”**.
 - > It means to **reduce woman’s reliance on family for care, protect her economic independence** and ensure that motherhood does not become a factor for exclusion at workplace.
 - **Right of reproductive autonomy is not confined to biological act of giving birth.** Adoption is an equal exercise of the right to reproductive and decisional autonomy under **Article 21** of the Constitution.
 - Supreme Court urged the Union Government to enact laws recognizing paternity leave as a social security benefit.

6.4. NEWS IN SHORTS

6.4.1. ARTIFICIAL INTELLIGENCE (AI), KEY TO SOLVING EDUCATIONAL CHALLENGES IN INDIA

Importance of AI in Education

- **For Students:** Offers **personalised Learning Paths and Remediation** assessing a student’s level in real-time to adjust difficulty, format, or pace of content. E.g., MindCraft, platform for rural students offers tailored content.
- **For Teachers:** NCERT study (2024) revealed that **teachers who receive pre-service with AI-assisted lesson planning tools** were better able to identify student needs.
- **Assessments:** AI-enabled assessments can prove to be **formative and ongoing**, offering students real-time feedback and providing teachers with actionable insights.
- **Governance and System Monitoring:** Through **predictive analytics and AI-powered dashboards**.
- **Inclusive Education:** Support learners with disabilities via assistive AI tools, offering multilingual/ dialectical support.



Key Initiatives taken for Extending AI to Education

- **National Education Policy (NEP) 2020:** Acknowledges role of **AI, big data and machine learning** in driving transformation.
- **School Education:** Integration of AI into school curricula through CBSE and NCERT, under NEP 2020 and National Curriculum Framework (NCF) 2023.
- **AI-Courses for Students and Educators:** **DIKSHA** (Digital Infrastructure for Knowledge Sharing), **SOAR (Skill for AI Readiness)** to build AI awareness and skills for classes 6–12 students and educators; **SWAYAM (Study Webs of Active Learning for Young Aspiring Minds)** platform offers free AI courses from IITs and IISc, etc.
- **Higher Education:** **University Grants Commission (UGC), 2022** undergraduate curriculum includes AI, 3D machining, big data analysis, machine learning, etc.
- **Research and Development:** National Research Foundation, One Nation One Subscription, etc.

6.4.2. IMPACT4NUTRITION INITIATIVE TO MOBILIZE PRIVATE ACTION FOR NUTRITION (I4N)

NITI Aayog and UNICEF India, through **IMPAct4Nutrition (I4N)** platform signed Statement of Intent to Strengthen Nutrition and Health Outcomes in Aspirational Districts and Blocks.

About I4N platform

- Serves as a central hub of knowledge and resources on **nutrition**.
- Acts as connection between businesses and broader social movement surrounding **POSHAN 2.0**.
 - **POSHAN 2.0** aims to achieve improvement in key nutrition parameters for both children and women.
- It includes **ACE Card initiative** (Assets for nutrition, CSR for Nutrition and Employees engagement for Nutrition) to accelerate behaviour change towards improved nutrition literacy and dietary habits in the work ecosystem.



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7. SCIENCE AND TECHNOLOGY

7.1. DATA CENTRES

Why in News

Data centre capacity in India has increased from **about 375 MW in 2020 to around 1500 MW by 2025.**

About Data Centres

- A Data Centre is a **dedicated secure space within a centralized location** where computing and networking equipment is concentrated for the purpose of **collecting, storing, processing, distributing or allowing access to large amounts of data.**
- India's Status:**
 - Data centre capacity:** Projected to grow four to five times by 2030.
 - Data centre market value:** Expected to increase from **US\$ 4.5 billion in 2023 to a projected US\$ 11.6 billion by 2032.**
 - Investment:** Between 2019 and 2025, the commitment investment reached approximately USD ~95 billion from both global and domestic investors.

Factors facilitating Growth of Data Centres in India

- Initiatives announced in Budget 2026–27:**
 - Tax incentives:** **Tax holiday till 2047** for eligible foreign companies providing cloud services to customers globally using data centre services from India.
 - Safe harbour:** A **safe harbour** of 15% on cost where the Indian data centre is a related entity of the foreign company (operating as a cost-plus centre).
 - Enhancing core electronics manufacturing capabilities:** A provision of **₹1,000 crore** for India Semiconductor Mission (ISM) 2.0; outlay for the **Electronics Components Manufacturing Scheme (ECMS)** increased to **₹40,000 crore.**
- Infrastructure Status for Data Centres (2022):** Centres with an **IT load above 5 MW** can get easier access to institutional credit at lower rates and attract foreign investments.
- Data Localisation and Sovereignty:**
 - Reserve Bank of India's (RBI) directive** to store payment systems data locally, requires data to remain within Indian borders for national security and privacy reasons.
 - Digital Personal Data Protection (DPDP) Act, 2023** strengthens the governance framework for data security and responsible data use.
- AI Data Centre Focus:** Under the **IndiaAI Mission**, the government is fostering AI-optimized facilities, offering subsidized compute access, and supporting the development of sovereign AI models.
- Draft Data Centre Policy (2020):** Recommended setting up **Data Centre Economic Zones (DCEZs)** and a single-window clearance mechanism.
- E-Governance:** The national cloud infrastructure **GI Cloud (MeghRaj)** has been established to provides secure, scalable, and elastic cloud facilities for delivery of e-Governance services through the **National Informatics Centre (NIC).**

Data Centre Types

Enterprise Data Centres

Proprietary facilities built, owned, and operated by a single organization for internal end-users.

Managed Services & Colocation

Third-party facilities where multiple organizations lease space, power, cooling, and security.

Hyperscale Data Centres

Massive facilities specifically designed for large-scale computing and storage, championed by tech giants.

Edge Data Centres

Smaller, modular facilities located closer to the end-user (the "edge" of the network).

Know the term

- Safe Harbour Margin:** Under the Income Tax Act, it refers to a specified profit margin declared by a taxpayer for certain international transactions, without detailed checking, if it meets prescribed conditions and provisions.

- Foundational digital initiatives like **Aadhaar** (supporting over 1.36 billion users), **Unified Payments Interface (UPI)**, and the Open Network for Digital Commerce (ONDC) rely heavily on robust data centres.
- **Other enabling factors:**
 - Global data boom in Artificial Intelligence (AI) driven digital economy;
 - Rapidly growing SaaS (Software as a Service) market (expected to reach \$35 billion by 2025);
 - Rapid digitalisation across sectors under the Digital India initiative;
 - Widespread enterprise cloud adoption by India's booming start-up ecosystem;
 - Reliable power solutions through expansion of renewable energy capacity, Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act etc.

Challenges in Expanding Data Centre Capacity in India

- **Water requirements:** Cooling a 100 MW hyperscale facility can consume up to 2 million litres of water per day, which can lead to severe water crisis in already water stressed cities like Chennai and Bengaluru.
- **High electricity demand:** Electricity demand from data centres is **projected to nearly double by 2030**, according to International Energy Agency (IEA) estimates.
 - It necessitates **stable uninterrupted 24/7 electricity supply** and **upgradation of India's grid capacity**, especially to facilitate ultra-high-density load required by AI data centres.
- **Infrastructure Risks:** Building data centres in India without climate-resilient planning risks severe operational and financial losses, as the majority of districts in India face extreme floods (72%) and extreme heat (57%).
- **Geographical Concentration:** Over 70% of India's operational capacity is concentrated in major financial and technological hubs primarily Mumbai, Chennai, Bengaluru, and Hyderabad.
- **Complex Regulations:** Establishing a Data centre capacity requires a complex web of approvals (such as land conversion, fire safety, environmental clearance, and building codes) raising project risk and costs.
- **Talent Gap:** Shortage of highly specialized professionals required for modern data centres including critical infrastructure cybersecurity experts and Infrastructure Management (DCIM) specialists.

Way Forward to make India global data centre hub

- **Single-window clearance:** Particularly for land acquisition, building approvals, grid connectivity, and fire safety clearances to fast-track deployment timelines.
- **Integrated Land-Water-Energy Nexus Planning:** Siting for new data centres can be decided through a resource-first master plan that evaluates grid readiness, local groundwater stress, and climate-hazard vulnerability prior to land allocation.
- **Promote Advanced cooling technologies:** Alternatives such as direct-to-chip cooling, dielectric plate cooling, and immersion cooling can significantly reduce water and power usage.
- **Mandatory Green Standards:** Shifting from voluntary compliance to enforceable sustainability benchmarks.
 - The government can promote global certifications like **LEED (Leadership in Energy and Environmental Design)**.
- **Bridging the Skill Deficit:** Establishing dedicated curricula in universities and ITIs (Industrial Training Institutes) to train the next generation of specialized data centre engineers and operators.

Conclusion

India's rapidly expanding data centre ecosystem reflects its emergence as a global digital hub, driven by policy support, rising data demand, and technological advancements. However, challenges related to energy, water, infrastructure, and skills must be addressed to ensure sustainable growth. A coordinated approach focusing on green technologies, streamlined regulations, and capacity building will be crucial to position India as a resilient and competitive global data centre destination.

7.2. IRNSS-NAVIC

Why in the News?

Indian Regional Navigation Satellite System (IRNSS)-**Navigation with Indian Constellation (NavIC)** has suffered a major setback after the last atomic clock on board the IRNSS-1F stopped functioning.

More on the news

- This leaves only **3 satellites** (IRNSS-1B, 1I, and NVS-01) of the NavIC constellation capable of providing PNT (Position, Navigation, and Timing) services.
 - Total of **6 of 11 Indian** satellites meant for the NavIC system have failed due to the atomic clocks.
- At least 4 satellites with operational atomic clocks** are required for the navigation satellite system to function properly.

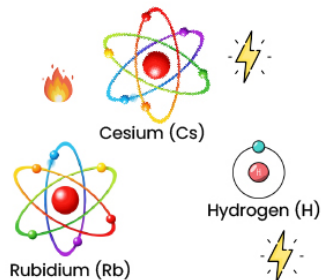
WHAT IS AN ATOMIC CLOCK?



DEFINITION: High-precision timekeeping devices that utilize the **microwave transition of atoms** to measure time with exceptional accuracy.

WORKING: Its Time-base is based on the **properties of atoms** when transitioning between different energy states

KEY ATOMS USED



MOST OF THESE CLOCKS are based on alkali atoms, which have a single valence electron.

WORKING PRINCIPLE

1. An atom, when excited by an external energy source, goes to a higher energy state.
2. Then, it returns to a lower energy state.
3. In this transition, the atom releases energy at a very precise frequency which is used as an input for measuring time.

ACCURACY COMPARISON

CONVENTIONAL QUARTZ-BASED CLOCK



Can **DRIFT** by a second in just a few days.

ATOMIC CLOCK



So precise that they **GAIN OR LOSE** only one second in about 100 million years

About IRNSS – Navigation with Indian Constellation (NavIC)

- It is an **independent regional navigation satellite system** developed by **Indian Space Research Organisation (ISRO)**.
- Coverage:** To provide accurate **Position, Velocity and Timing (PVT) service** to users in India as well as to region extending about **1500 km beyond** Indian land mass.
- Key services:**
 - Standard Positioning Service (SPS):** Available for all civilian users and uses L5 and S band.
 - It provides position accuracy of better than **20 meters** and timing accuracy better than **40 nanoseconds** over the **service area**.
 - Restricted Service (RS):** Encrypted service for **authorized users** and uses L5 band.
- Satellite Constellations:**
 - First Generation:** Consists of **7 satellites**- 3 satellites in **Geostationary orbit (GEO)** and 4 in **Geosynchronous orbit** originally and a network of ground stations operating 24 x 7.
 - IRNSS-1A** was India's first dedicated navigational satellite launched in 2013.
 - IRNSS 1-F** was launched by **PSLV-C32** into a sub-Geosynchronous Transfer Orbit (GTO) in **2016**.
 - > It was the **6th navigation satellite** and carried an imported **Swiss-made rubidium** atomic clock.
 - Second-generation:** **NVS** (Navigation Satellite) series of satellites which incorporates **L1 band signals** additionally to widen the services.
 - Five second-generation NavIC** satellites viz., **NVS-01/02/03/04/05** are envisaged to augment NavIC base layer constellation with **enhanced features for ensuring continuity of services**.
 - > **NVS-01:** Launched onboard **GSLV-F12** in **2023** and carried an **indigenous atomic clock** for the first time.

- > **NVS-02:** Launched onboard **GSLV-F15** in **2025**, but failed to reach its designated orbit, it was configured with Navigation payload in **L1, L5 and S** bands in addition to ranging payload in **C-band** like NVS-01.

Significance of functional IRNSS-NavIC

- **Strategic Independence:** A non-functional NavIC forces India back onto total reliance on the US-owned GPS with potential of denial in conflicts.
 - **E.g.,** In 1999 Kargil War, USA denied use of GPS.
- **National Security:** IRNSS provides encrypted Restricted Service (RS) for armed forces, supports missile guidance, surveillance, and real-time troop movement.
- **Infrastructure support:** E.g., around 8700 trains are equipped with NavIC along with other GNSS constellations; Integration with GAGAN for aviation etc.
- **Global Interoperability:** SPS signals are interoperable with the other global navigation satellite system (GNSS) signals namely GPS (USA), Glonass (Russia), Galileo (Europe) and BeiDou (China).
- **Other support:** Disaster Management; Transportation (terrestrial, aerial and marine); location-based services, personal mobility; Surveying and geodesy; scientific research; time dissemination and synchronization etc.

Challenges related to NavIC

- **Poor Launch Rate:** The constellation is deteriorating faster than can be replenished, owing to ISRO's limited launch rate, constrained by budget pressures required to sustain a **PNT** system.
- **Organizational Overextension:** The absence of a **national space law forces ISRO** to act as both the designer and operator of NavIC, which overextends the agency's resources.
- **Lack of management body:** India lacks a counterpart to the GPS Directorate and European Union Agency for the Space Programme (EUSPA), which respectively manage the GPS and Galileo constellations.
- **Incompatibility:** Not all smartphones and navigational gadgets (or navigators) are compatible with NavIC.

Conclusion

Department of Space is expanding NavIC's use across key sectors such as **real-time train tracking, fishing vessel communication, vehicle tracking** for passenger safety, and dissemination of Indian Standard Time (IST). It is also focused on fully operationalizing NavIC for secure navigation by **completing the base constellation**, enhancing services based on user needs, and integrating **indigenous technologies like space-grade atomic clocks** to strengthen technological self-reliance.

Know the term

- **Geosynchronous Orbit:** It is any orbit where a satellite takes **24 hours** to go around the Earth.
 - It matches Earth's rotation, but the satellite may **move north-south or in a figure-8** path in the sky.
- **Geostationary orbit:** It is a **special type of geosynchronous orbit** where the satellite stays **directly above the equator**, and appears **fixed at one point** in the sky.

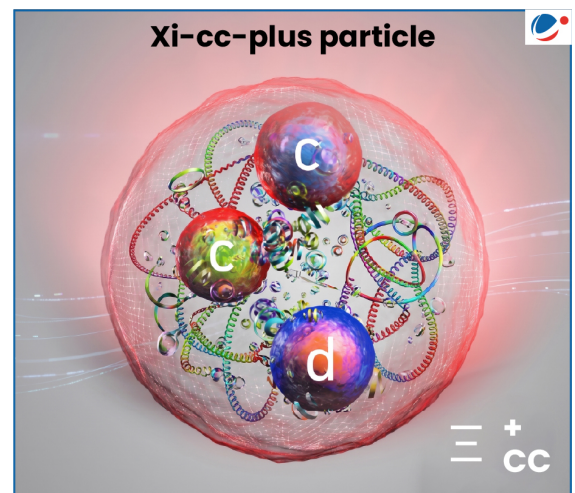
7.3. DISCOVERY OF NEW PARTICLE BY LARGE HADRON COLLIDER

Why in the News?

The **Large Hadron Collider (LHC)** at CERN has discovered a new particle named **Xi-cc-plus**, marking its **80th particle discovery**.

About the New Particle Xi-cc-plus

- **Structure:** It is made up of **two charm quarks** and **one down quark** similar to proton (made up of **two up quarks** and **one down quark**).
- **Mass:** The replacement of **up quarks** with **charm quarks** makes its mass **four times heavier than proton**.
- **Significance of the Discovery:** It will help physicists better understand how the **strong force** binds protons, neutrons and other composite particles together.



- In 2017, LHC reported the discovery of a very similar particle (like **Xi-cc-plus**), which consists of two charm quarks and one up quark.

Strong Force

- **Type of Force:** It is one of the four fundamental forces of nature- **strong, weak, electromagnetic** and **gravitational force**.
- **Nature:** It is **attractive force** which binds quarks together to form **protons and neutrons**, thereby holding subatomic particles together.
- **Strength:** It is about **100 times stronger than electromagnetism** and has influence over very, very small distances (about 100,000 times smaller than the diameter of an atom).

Quarks

- These are fundamental building blocks of matter and come in six flavours (types): **up, down, charm, strange, top and bottom**.
 - Quarks are always found in combination and **never occur in a free state**.
- They combine to form-
 - **Mesons:** Formed from a combination of two quarks. Examples: **Pions, Kaons**
 - **Baryons:** Formed from a combination of three quarks. Example: **Protons, Neutrons**
- Most of these mesons and baryons (collectively known as **hadrons**) are unstable and short-lived, making them a challenge to observe.

Large Hadron Collider

- It is the **world's largest and most powerful particle accelerator** which operates in a tunnel 100 metres underground at CERN (European Organization for Nuclear Research).
- **Structure:** It consists of a **27-kilometre ring of superconducting magnets** with a number of accelerating structures to boost the energy of the particles along the way.
- **Function:** Inside the accelerator, **two high-energy particle beams of protons or ions** travel at close to the speed of light before they are made to collide.
- **Significance:** These collisions produce particles and fields necessary for fundamental understanding of nature such as mass, unification of forces, dark energy and dark matter etc.
- **Other Discoveries by LHC:** Higgs Boson (2012); Exotic hadrons (Particles composed of four or five quarks); Rare B-meson decay; Toponium (Made of top quark and its anti-quark)- most massive composite particle ever observed.

CERN

- CERN, the European Organization for Nuclear Research, is one of the world's largest and most respected centres for scientific research situated at Franco-Swiss border near Geneva.
- **Founded** in 1954
- **Members:** 25 member states
 - **India** is an associate member.
- **Mission:** World-class research in fundamental physics using advanced particle accelerators

Conclusion

The discovery of Xi-cc-plus at CERN highlights the continuing success of the Large Hadron Collider in advancing fundamental physics. It deepens our understanding of quark interactions and the strong force, thereby contributing to a more comprehensive picture of the building blocks of matter and the fundamental laws governing the universe.

7.4. FOOD FORTIFICATION IN INDIA

Why in News?

Government has temporarily discontinued **rice fortification scheme** under the **Pradhan Mantri Garib Kalyan Anna Yojana** (PMGKAY) citing findings from an IIT Kharagpur study on nutrient stability.

What is Food Fortification?

- It is deliberately increasing the **content of essential micronutrients** in a food to improve the nutritional quality of food and to provide public health benefit with minimal risk to health.
 - E.g., **Fortified Rice Kernels (FRK)** is produced by blending rice flour with micronutrients such as **Iron, Folic Acid (Vitamin B9) and Vitamin B12** and shaping it to resemble rice grains.
- Regulatory Framework in India:** Food Safety and Standards (Fortification of Food) Regulation, 2018 outlines the standards and quality parameters for fortified foods.
 - Food Safety and Standards Authority of India (FSSAI) has operationalized standards for **fortifying five staple foods: Rice, Wheat Flour, Edible Oil, Milk, and Salt.**
- Methods of Food Fortification:**
 - Bio-fortification:** Enhancing the nutritional value of crops while they are being grown, either through conventional plant breeding or genetic modification.
 - E.g., Vitamin A-rich orange sweet potato.
 - Industrial Fortification:** Adding micronutrients to staple foods (like flour, oil, and salt) during the manufacturing or processing stage.
 - E.g., Spraying iodine on salt, or mixing custom-made FRKs into regular rice at a 1:100 ratio.
 - Home Fortification:** The easiest and most direct method, where individuals manually add micronutrients to their meals.
 - E.g., Mixing iron sprinkles, powdered nutrient sachets, or tablets directly into food while it is being cooked or right before eating.

Concerns Associated with Fortification

- Lower Bioavailability:** Nutrients supplemented into processed foods generally have lower bioavailability, meaning a smaller proportion is actually absorbed and utilized by the body.
- Lack of Immune Support:** Unlike natural, whole foods, artificially fortified foods do not contain inherent immune-boosting compounds.
- Shelf-life Degradation:** E.g., as per the study, factors such as moisture content, storage conditions, temperature, relative humidity and packaging material critically influence the stability and shelf life of FRK and **Fortified Rice (FR)**.
- Risks of Over-Nutrition:** Excessive intake through fortified foods can potentially interfere with prescription medications, causing reduced absorption of other vital nutrients, treatment failure, or increased health risks.

Way Ahead

- Dietary diversification** to tackle both under-nutrition and obesity by encouraging the consumption of a wider variety of nutrient-dense food groups like Millets.
- FSSAI mandatory labelling and warning:** Food Safety and Standards (Labelling and Display) Regulations, 2020 helps to improve transparency and assist consumers in making healthier choices through enhanced labelling.
- Address concerns about shelf life** by improving packaging, making supply chains shorter and investing in creating more stabilized formulations.

Conclusion

Food fortification is an important tool to address micronutrient deficiencies, but its effectiveness depends on proper implementation and scientific validation. The pause under Pradhan Mantri Garib Kalyan Anna Yojana underscores the need for better storage, monitoring, and a balanced approach combining fortification with dietary diversification.

Benefits of Food Fortification

Combats Hidden Hunger

35.5% children under 5 years are stunted (NFHS-5).

Addresses health risks of micronutrient malnutrition

E.g., Iron and Folic Acid deficiency lead to Anaemia and various birth defects.

High benefit-to-cost ratio

As per Copenhagen Consensus, every ₹1 spent on fortification results in ₹9 in benefits to the economy.

Globally Proven

WHO recommends large scale food fortification.

Restores Lost Nutrients

Replenishes vitamins and minerals lost during processing.

7.5. HUMAN PAPILLOMAVIRUS (HPV)

Why in the news?

Prime Minister launched a **nationwide Human Papillomavirus (HPV) vaccination campaign**, which aims to administer free vaccines to approximately 1.15 crore 14-year-old girls across all States and Union Territories to **prevent cervical cancer**.

About Human Papillomavirus (HPV)

- **Nature:** HPV is a common **sexually transmitted infection** which can affect the skin, genital area and throat, responsible for causing genital warts, and penile, anal, cervical, vagina and oropharyngeal cancers.
 - Almost all sexually active people get infected at some point, but the immune system naturally clears the virus within two years in most cases.
- **HPV Type**
 - HPV refers to a group of **around 200 related viruses**.
 - There are at least **14 types of HPV that can potentially cause cancer**.
 - **Types 16 and 18** are "high-risk" strains that cause about 70% of cervical cancers globally and **more than 80% of cases in India**.
- **HPV Vaccines**
 - Cervical cancer is the only cancer preventable by a vaccine.
 - As of 2025, there are 8 licensed HPV vaccines, five of which have received WHO pre-qualification and are available globally.
 - India's national program relies on **Gardasil-4**, a quadrivalent vaccine targeting types 6, 11, 16, and 18.
 - India has also indigenously developed **Cervavac**, manufactured by the Serum Institute of India (SII), which provides protection against the same four strains.
- Over **160 out of 194 countries** have introduced the HPV vaccine into their national immunization schedules.
 - Over 50 countries, including the US, Canada, and Germany, have implemented national HPV programs that include both boys and girls

Initiatives for HPV Vaccine and Cervical Cancer Prevention

- **Global Initiatives**
 - **Cervical Cancer Elimination Initiative (by World Health Organization):** WHO has outlined the '90-70-90' targets for each country by 2030
 - > **Vaccination:** 90% of girls fully vaccinated with the HPV vaccine by the age of 15;
 - > **Screening:** 70% of women screened by the age of 35, and again by the age of 45;
 - > **Treatment:** 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.
 - **World Cervical Cancer Elimination Day:** Observed annually on **November 17** to build awareness, track progress, and strengthen global collaboration on HPV vaccination, screening, and treatment.



Cervical Cancer



Prevention

- HPV Vaccination in girls aged 9–14 years
- Regular Cervical Screening after 30 years of age
- Early Treatment of precancerous lesions



Status

- Global Rank: Fourth most common cancer in women globally.
- India's Share: Second most common cancer among women; 25% of global deaths are seen in India.
- National Disease Burden: The disease causes over 1.2 lakh new cases and nearly 80,000 deaths annually in India.



Causes

- Almost all cases are caused by persistent infection with oncogenic (cancer-causing) types of HPV.
- Women living with HIV are six times more likely to develop cervical cancer.

About GAVI, the Vaccine Alliance

- **What it is:** Formed in 2000, Gavi is a **public-private partnership** bringing together developing countries, donor governments, WHO, UNICEF, the World Bank, the vaccine industry, and the Bill & Melinda Gates Foundation.
- **Role in India:** To reduce "zero-dose" children and to help integrate the **HPV and Typhoid Conjugate Vaccines** into India's routine immunization schedule.
- Gavi is actively supplying doses of the Gardasil vaccine for the current HPV campaign.

• Initiatives in India

- **Nationwide HPV Vaccination Drive (2026):** Launched on February 28, 2026, across all States and Union Territories at government health facilities.
- **Digital Infrastructure Integration:** The vaccination drive is supported by digital tools like **U-WIN platform** for registration of beneficiaries register and **eVIN (Electronic Vaccine Intelligence Network)** portal for tracking vaccine stocks.
- **Partnership with GAVI:** In 2023, the Indian government established a three-year partnership with Gavi, securing **US\$ 250 million in funding**.

About HPV Vaccination Drive (2026)

- **Target group: 14-year-old girls** (approx. 1.2 crore annual cohort).
- **Nature:** Vaccination is voluntary, provided free of cost, and requires mandatory parental consent.
- **Rollout plan:** The intensive campaign runs for **90 days**, after which the vaccine will be available on routine immunization days.
 - Shots are administered only at designated Government Health Facilities.
- **Vaccines used:** A **single dose (0.5 ml) of Gardasil-4** administered intramuscularly.
- **Girls Excluded from Vaccination**
 - Those with moderate or severe illness (wait until complete recovery)
 - Known allergy to yeast or prior allergic reaction to any vaccination
 - Pregnancy
 - Girls outside the 14-year target age group
 - Girls previously vaccinated with any HPV vaccine (Gardasil, Gardasil-9, Cervarix, or Cervavac)
- **Significance of this Initiative:** Advances WHO's 90-70-90 target for cervical cancer elimination by 2030, builds herd immunity, and strengthens preventive healthcare by prioritising women's health at scale.
- **Concerns**
 - **Legacy of 2009 PATH Project:** The 2009 PATH project, involving HPV vaccination, reported deaths of some girls, raising safety concerns. However, a parliamentary committee in 2011 found no conclusive link between the vaccine and deaths.
 - This incident had severely damaged public trust and delayed India's nationwide HPV vaccine rollout by over 15 years.
 - **Misinformation & Vaccine Hesitancy:** Social media fearmongering that recycles past controversies and the broader politicization of vaccines continue to **erode public confidence** and fuel hesitancy.
 - **Social Stigma:** The association of HPV as a **sexually transmitted infection** creates societal stigma, making it crucial to reframe the immunization as a cancer-prevention tool to normalize uptake.
 - **Low Health Literacy:** Significant information gaps among parents necessitate targeted counseling, school-based outreach, and the involvement of community healthcare workers to build awareness.
 - **Exclusion of Boys:** The current nationwide drive targets only girls, ignoring the fact that at least one in three men over age 15 are infected with at least one genital HPV type.

Conclusion

HPV vaccines are among the most extensively studied vaccines globally, with more than 500 million doses administered worldwide since 2006. The vaccine is 93–100% effective in preventing cervical cancer caused by the HPV types it covers. **HPV Vaccination Drive** fulfils the vision of "**Swasth Nari Sashakt Parivar**" ensuring prevention, protection and equity at the core of women's healthcare to help build healthy families.

7.6. NEWS IN SHORTS

7.6.1. INDIAAI MISSION

Parliamentary Standing Committee in its report analysed performance of IndiaAI Mission.

Issues & Recommendations of IndiaAI Mission

Key Issues	Recommendations
Under-utilization of Funds: Mission utilized only 32% of its Revised Estimate (RE) in FY 2025-26 (as of Dec 2025). Consequently, 2026-27 Budget Estimate (BE) allocation was halved against proposed requirements.	Financial Discipline: Committee urged MeitY to strengthen financial discipline , accelerate implementation across all pillars, and optimize spending.
Infrastructure Bottlenecks: Despite development of GPUs clusters , major issues exist like high cost of hardware, global supply chain delays and tax holiday.	Stakeholder Consultation: MeitY must conduct extensive stakeholder consultations to mitigate adversities related to hardware procurement and global supply constraints.
Environmental Impact: Establishing massive computing infrastructure involves huge power and water consumption by data centres .	Environmental Mitigation: MeitY should consult environmentalists to address ecological impact of setting up sovereign data centres.
R&D and Inclusivity Constraints: There are specific challenges in developing a sovereign AI model . Additionally, AI research funding remains largely restricted to premier institutions like IITs and national laboratories, limiting broader ecosystem growth.	Broader R&D Evaluation: MeitY needs to assess the real-life impact of new initiatives, such as the Anusandhan National Research Foundation and the Research Development and Innovation Fund, to democratize research .

About IndiaAI Mission

 **Ministry:** Launched in 2024 by **MeitY**

 **Aim:** To foster AI innovation by democratizing computing access, enhancing data quality, and developing indigenous AI capabilities.

 **Implementing agency** IndiaAI, an Independent Business Division (IBD), under MeitY.

 **7 pillars:** IndiaAI Innovation Centre, IndiaAI compute capacity, IndiaAI FutureSkills etc.

 **Duration:** 5 years



Read our previous coverage on AI Governance

7.6.2. MOONSHOT PROJECT

IISc and Pratiksha Trust launched Moonshot project on Brain Co-processors.

- The Moonshot project aims to develop both **implantable and non-invasive brain co-processors** capable of **decoding neural activity** from brain recordings, processing and **re-encoding the signals** back into the brain using **neural stimulation**.

About Brain Co-processors

- They are **AI-powered, bidirectional** neural interfaces that decode, analyze, and re-encode brain signals.
- Unlike** conventional **BCIs** (Brain-Computer Interface), **they target the full cognitive loop** i.e., perception, attention, decision-making, and motor control.
- Primary goal:** Restore reach and grasp in stroke survivors.

About Non-invasive Brain Stimulation (NIBS)

- A technique that modulates brain activity **without surgical implantation**.
- It uses **methods** such as Transcranial Magnetic Stimulation (**TMS**) and Transcranial Direct Current Stimulation (**tDCS**).
- TMS and tDCS do not require electrodes on the bare brain** and are **applied to research on** neurological, psychiatric, and neurodegenerative disorders.

Concerns with Brain Co-processors



Privacy Risks

Ethical concerns over neural data privacy and autonomy.



Safety risks

With long-term neural modulation or implants.



Possibility of misuse

For cognitive enhancement or surveillance.



Regulatory Gaps

Need for robust regulatory frameworks and ethical oversight.

7.6.3. DIGITAL TWIN INITIATIVE

V.O. Chidambaranar Port Authority became the first port in India to launch **Digital Twin initiative**.

- V.O. Chidambaranar Port** (earlier Tuticorin Port), one of 13 major ports in India, is an artificial deep-sea harbour located in Thoothukudi (Tamil Nadu).
 - Its history dates to as early as 123 AD when **Ptolemy from Greece** described Tuticorin as a flourishing trade centre engaged in Maritime Trade with Western and Eastern Countries.
 - Tuticorin has been **centre for Pearl Fishery** for centuries.

About Digital Twin Initiative

- Digital Twin is a **virtual representation** of a physical object or system that uses real-time data to accurately reflect its real-world counterpart's behavior, performance and conditions.
 - Digital twins enable **continuous monitoring, simulation and analysis** of an object, product or system over the course of its lifecycle, **from design and production to maintenance and decommissioning**.
- Digital Twin for Port Management:** It will create a **real-time virtual replica** of the port's

Use Cases of Digital Twins



Manufacturing

- Design customization
- Simulate & validate each step of development
- Enhancing Operations Process



Aerospace/ Automotive

- Design customization
- Defect detection
- Aircraft tracking



Construction/ Real Estate

- Automated Project Control
- Safety monitoring
- Project Planning & Logistics



Utilities

- Power grid planning
- Enhanced visibility across physical grid
- Efficiency improvement of the grid



Agriculture/ Farming

- Advance smart farming
- Plan, monitor, control, analyze & optimize farm processes
- Weather prediction



Healthcare

- Diagnosis & therapy
- Preventive treatment
- Drug development



Retail

- Supply chain optimization
- Product inception, development & distribution
- Fleet management & route efficiency



Mining

- Improve machinery productivity
- Allow for realistic simulation training

infrastructure, operational assets, and maritime ecosystem, enabling enhanced operational visibility, predictive analytics, and data-driven decision-making across the port.

- **Technologies:** The platform will use IoT sensors, GPS tracking, LiDAR mapping, drone imaging, and CCTV networks etc.

7.6.4. V2X TECHNOLOGY

As per reports, the Union government has initiated airwave spectrum allocation for 'vehicle-to-everything' or V2X technology.

About V2X Technology

- It enables vehicles to communicate with each other (V2V), with other road users such as pedestrians and cyclists (V2P), and with roadside infrastructure (V2I).
- **Benefits:** Enhanced Road Safety (e.g., helps vehicles see vulnerable road users), Improved Traffic Efficiency, etc.

7.6.5. KAVACH SYSTEM

Indian Railways approved extension of KAVACH system across multiple zones.

About KAVACH (Automated Train Protection (ATP) system)

- It is a **Train Collision Avoidance System (TCAS)** that prevents collisions by automatically applying brakes if 2 trains are on a collision course.
- **Developed by:** Research Designs & Standards Organization (RDSO) of Indian Railways.
- **Key features**
 - Continuous real-time updates to the locomotive.
 - Prevention of all types of train collisions: head-on, rear-end, and side-on. (loco to loco communications).
 - Prevents Signal Passing at Danger.
 - **Others:** Repeats line-side signal for foggy weather, Automatic horn activation, Emergency Stop-on-Sight (SoS) messages.

7.6.6. GARBH-INI

India's largest pregnancy cohort study of 12,000 women under the GARBH-INi initiative is aimed at developing indigenous, AI-driven solutions to address preterm births, informed the Union Minister of Science & Technology.

About GARBH-INi

- It is a flagship programme supported by the Department of Biotechnology (DBT).
- **Aim:** To reduce adverse pregnancy outcomes.
- The initiative has also established a **national biorepository and GARBH-INi-DRISHTI** data-sharing platform, enabling wider access for the research community.
- **GARBH-INi pregnancy cohort** is one of the largest pregnancy cohorts in South Asia established from 2015 onwards at Gurugram Civil Hospital.

7.6.7. SCHEME TO PROMOTE MANUFACTURING OF SINTERED REPM

Ministry of Heavy Industries invited bids to set up integrated manufacturing facilities under the **Scheme to Promote Manufacturing of Sintered Rare Earth Permanent Magnet (REPM)**.

About Scheme to Promote Manufacturing of Sintered REPM

- **Aim:** To establish **6,000 Metric Tons per Annum (MTPA)** of integrated REPM manufacturing facilities, involving conversion of rare earth oxides to metals, metals to alloys, and alloys to finished REPMs.
- **Beneficiary allocation:** 5 beneficiaries selected through **global competitive bidding process**, each to be allotted up to 1,200 MTPA of capacity.
- **Financial outlay:** Rs.7,280 crores- **Capital subsidy:** ₹750 crore, **Sales-linked incentive:** ₹6,450 crore

About REPM

- They are one of the strongest types of permanent magnets, **made from alloys of rare earth elements**.
- **Examples:** Neodymium-Iron-Boron.
- **Applications:** Electric vehicles, renewable energy, electronics, aerospace, and defence applications.

7.6.8. WORLD OBESITY ATLAS 2026

Released by World Obesity Federation, the Atlas provides global, regional and national estimates of rising obesity among children and adolescents.

- Obesity is classified by the **World Health Organization (WHO)** as a chronic, relapsing disease characterising abnormal or excessive fat accumulation that presents a risk to health.
 - Its diagnosis is made by measuring people's weight and height and by calculating the **Body Mass Index (BMI): weight (kg)/height² (m²)**.
 - For school-age children (aged 5-19 years), obesity is greater than 2 standard deviations above the WHO Growth Reference median.

Key Highlights of the Report

Global Scenario

- **Obesity:** Prevalence of obesity among school-age children (aged 5-19 years) has increased from 4% in 1975 to nearly 20% in 2022.
 - The majority resides in middle-income countries.
- **Implications:** Obesity in childhood frequently persists into adulthood, increasing the risk of Non-Communicable Diseases (NCDs) such as diabetes, heart disease, and certain cancers.
- **High Burden Countries:** Ten countries (with highest burden in China, India, and US) alone account for over 200 million school-age children with high Body Mass Index (BMI).

Indian Scenario

- **High Burden:** India ranks second globally for children who are overweight and living with obesity.
 - **41 million** school-age children in India have high BMI.
- **High chronic disease indicators:** In 2025, about 8.39 million children had BMI-attributed metabolic dysfunction-associated liver disease (MASLD), while 2.98 million suffered from BMI-attributed hypertension.

Driving the rise of Obesity In India



High-Calorie, Low-Nutrient Diets

Increased consumption of refined carbohydrates and saturated fats



Easy Access to Processed Foods

Widespread availability of packaged, ready-to-eat meals



Growing Culture of Eating Out

Frequent dining at restaurants where food is often cooked in unhealthy oils



Use of Genetically Modified Crops

Altered food composition impacting metabolism and weight gain



Physical Inactivity

Declining engagement in sports, exercise, and outdoor activities



Sedentary Lifestyles

Long hours of sitting, excessive screen time, and minimal movement in daily routines



Read our previous coverage on Obesity

7.6.9. GLP-1 DRUGS

The Central Drugs Standard Control Organisation (CDSCO) has prohibited pharmaceutical companies from **advertising GLP-1 drugs** amid growing concerns of **rampant misuse**.

About GLP-1 (glucagon-like peptide-1 receptor agonists) drugs

- They are a class of medications that mimic the natural GLP-1 hormone, helping regulate blood sugar levels and appetite.
 - These drugs include **Ozempic, Wegovy**, etc.
- They were **originally used for managing type 2 diabetes**, but are now also used for **reducing obesity and weight loss**.
 - They slow down the process of food digestion and increase feelings of fullness, leading to a reduction in food intake.
- Some GLP-1 drugs lower the **risk of heart attack, stroke, and heart failure**, and reduce the incidence of type 2 diabetes, kidney and liver disease among other outcomes.

7.6.10. WHITE AND BROWN FAT

Recently in news, **fat cells (both white fat and brown fat)** can become a promising target for future **weight-loss therapies** as they burn energy to make heat.

About White Fat and Brown Fat

- **White Fat** is the most abundant fat in adults and **Brown Fat** is mainly found in neck and upper chest.
- **Primary Function: White Fat** stores energy in the form of triglycerides.
 - **Brown Fat** burns energy and dissipates calories; converts chemical energy into heat.
- **White Fat** acts as a powerful endocrine organ, releasing hormones like leptin (to reduce appetite) and adiponectin (to regulate insulin and blood sugar).
 - **Brown Fat** is naturally triggered by the brain upon exposure to cold temperatures to **generate heat**.

7.6.11. ANTIPROTONS

Scientists at CERN successfully transported **antiprotons** by road for the **first time**.

- It is significant because **antimatter usually annihilates on contact with matter**, which made transport very difficult earlier.

About Antiprotons

- They are **antimatter particles** identical to a **proton** in **mass** and **spin** but **carrying an opposite (negative) electric charge**.
- They were first produced and identified by Emilio Segrè and Owen Chamberlain (for which they received the Nobel Prize for Physics in 1959).
- Experiment will help in solving the **Matter–Antimatter Mystery**.
 - The Big Bang should have produced equal matter and antimatter, yet the universe is dominated by matter.

7.6.12. MEGAMASER

Astronomers using the MeerKAT telescope discovered the brightest and most distant megamaser.

- **MeerKAT** located in South Africa is a precursor to the **Square Kilometre Array (SKA) telescope**.

About Megamaser

- It is essentially a giant beam of electromagnetic radiation emitted when a pair of galaxies violently merge.
 - During the cosmic collisions, **giant clouds of gas are compressed**, exciting **large reservoirs of hydroxyl (OH) molecules** that release high-energy microwaves.
- This is similar to **human-made lasers**, which work by exciting particles and then amplifying the resulting light waves with mirrors.
 - But for masers, **microwaves are amplified** instead of visible light.
- These rare objects act as **cosmic signposts**, revealing critical details about galaxies in the early universe.

7.6.13. MOLECULAR CLOUDS

Scientists tracing small molecular clouds located near the Milky Way disc have seen the skeleton of the magnetic field surrounding them for the first time to better understand its role in star formation.

About Molecular Clouds:

- It is an **interstellar cloud of gas and dust in which molecules can form**, the most common of which is hydrogen (H_2).
- It is generally **thought that our Sun formed in a similar molecular cloud by collapse of the cloud** triggered by nearby supernova.
- **Key features:** It is **opaque because of its internal dust grains**. The form of such dark clouds is very irregular: they have no clearly defined outer boundaries.

7.6.14. DIMETHYL ETHER (DME)

Council of Scientific and Industrial Research- National Chemical Laboratory (CSIR-NCL) has developed a **Dimethyl Ether (DME)** production process technology.

- DME can be considered as a **'Second Generation fuel/bio-fuel'** and used as a sustainable alternative to LPG.

About Dimethyl Ether (DME)

- **Nature:** Colourless gas, slight ethereal odour, liquefies under pressure.
- **Properties:** Inert, non-corrosive, non-carcinogenic, low toxicity, does not form peroxides by prolonged exposure to air.
- **Applications:** Fuel, aerosol propellant, solvent, and refrigerant.
- **Advantages as a fuel:** Clean burning with minimal **SO_x, NO_x, soot, particulate matter**; comparable calorific value and thermal efficiency to traditional fuels; can be blended with LPG (up to 20%); can be produced from Indian coal, methanol, or captured CO₂, etc.

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8. CULTURE

8.1. MAHAD SATYAGRAHA

Why in the News?

20th March 2026 marked the beginning of the centenary (2026-27) of the Mahad Satyagraha.

About Mahad Satyagraha

- The Mahad Satyagraha, also known as the **Chawdar Tank Satyagraha**, was a landmark 1927 **non-violent protest led by Dr. B.R. Ambedkar** in Mahad, Maharashtra, **to secure Dalits' (then known as "untouchables") rights to use water from the public Tank.**
 - It marked a crucial **shift toward direct action against caste discrimination** and the assertion of human dignity.
 - 20th March is observed as the **Social Empowerment Day.**
- **Background:**
 - Historically, **untouchables were denied access to public resources** like wells, tanks, and schools due to **strict codes of purity and pollution.**
 - In 1923, the **Bombay Legislative Council** passed a resolution to grant untouchables free access to state-funded public watering places and institutions.
 - In 1924, the **Mahad Municipality reaffirmed this resolution** and opened the local Chawdar Tank to untouchables. However, **this remained a law only on paper.**
 - To challenge this inequality, the **Kolaba District Depressed Classes** organized a conference at Mahad on March 19-20, 1927, and **invited Dr B.R. Ambedkar** to preside over it.
- **Key Events:**
 - **The March to the Tank:** On March 20, 1927, **Dr Ambedkar led a peaceful procession** to the Chawdar Tank.
 - > He **drank water from the tank**, and the massive crowd followed suit, performing a revolutionary act of reclaiming human dignity and civil rights.
 - > The satyagraha was organised by the **Bahishkrit Hitakarini Sabha**, founded in 1924 by Dr Ambedkar.
 - **The Second Satyagraha:** It was planned for December 25, 1927, to reassert their rights. However, a lawsuit was filed claiming the tank was private property and secured a temporary court injunction.
 - > Respecting the law, Dr **Ambedkar postponed the satyagraha.**
 - **Legal Victory:** On March 17, 1937, the **Bombay High Court ruled in favour of the Depressed Classes**, declaring the Chawdar Tank public property open to all.
- **Associated Personalities:** Rao Bahadur S. K. Bole, Surendranath Tipnis, Subhedar Savadkar, Anantrao Chitre, and Ramachandra Babaji More.
- **Influence of Mahatma Gandhiji:** It reflected the influence of Gandhiji's methods in its reliance on **non-violent public action, peaceful procession, and strict self-restraint.**
 - Gandhiji himself wrote in **Young India** to support **Ambedkar's Satyagraha**, praising the Dalits' restraint.

Impact of the Mahad Satyagraha

- **On the Dalit Movement in India:**
 - **Mass Organization:** It successfully organized the heavily oppressed untouchables, teaching them self-help, self-respect, and the power of collective action.
 - **Transformation of Lifestyle:** Following Ambedkar's plea, the untouchables began to abandon disparaging, caste-enforced practices.
 - **Involvement of Women:** It marked the unprecedented involvement of untouchable women in the movement.
- **On the Indian Independence Movement:** The Satyagraha forced the broader national and political movement to grapple with the reality of untouchability.
 - Industrialist Jamnalal Bajaj opened the **Lakshminarayan Temple in Wardha for Dalits in 1928, and**
 - The **Indian National Congress reconstituted its Anti-Untouchability Subcommittee** with Madan Mohan Malaviya as its president.
- **On the Constitution of India:** This direct action for civil rights **paved the way for the framing of the Constitution of independent India.**

- The Satyagraha's **demand for equal access to state-funded public wells, tanks, and institutions** perfectly mirrors the protections against discrimination **guaranteed under Article 15 of the Indian Constitution**.
- The movement's core objective is directly reflected in **Article 17 of the Constitution**, which legally abolished the practice of untouchability.

Other Prominent Dalit Movements in Pre-independence India

- **Satyashodhak Samaj (1873):** Founded by **Jyotirao Phule** in Maharashtra, this "Truth Seekers' Society" aimed to liberate lower castes from religious exploitation.
- **Self-Respect Movement (1925):** Founded by **E.V. Ramasamy (Periyar)** in Tamil Nadu, it fought against caste-based discrimination and advocated for a society where individuals were valued regardless of their birth.
- **Harijan Sevak Sangh (1932):** Established by **Mahatma Gandhi** to work toward the removal of untouchability and the social upliftment of Dalits, whom he referred to as "Harijans".

Conclusion

Dr Ambedkar equated the Mahad Satyagraha to the **French National Assembly of 1789**, establishing it as a **foundational movement for liberty, equality, and fraternity in India**. It united the Dalit masses, paved the way for subsequent agitations like the **1930 Kalaram temple entry movement**, and remains a deeply revered symbol of anti-caste resistance.

8.2. GYAN BHARATAM NATIONAL MANUSCRIPT SURVEY

Why in the News?

The Ministry of Culture launched the Gyan Bharatam National Manuscript Survey, under the Gyan Bharatam initiative.

More in the News

- Through the **Gyan Bharatam National Manuscript Survey**, the Ministry of Culture **aims to create a geo-tagged national inventory of manuscript repositories across districts and states**.
- This effort will help build a **national 'Manuscript Presence Map'**, enabling **systematic cataloguing, conservation planning, and long-term research**.

About Gyan Bharatam Mission

- **Ministry:** Ministry of Culture.
- It is a **flagship programme** aimed at **preserving, digitizing, and disseminating India's manuscript heritage** using modern technology which builds upon the **National Mission for Manuscripts**.
- **Financial Outlay:** **₹491.66 crore for the period 2025-2031**.
- **Type:** Central sector scheme.
- **Key Objectives:**
 - **Digitize and catalog over 1 crore manuscripts** across the country.
 - Establish a **National Digital Repository** of manuscripts.
 - Integrate **AI, Optical Character Recognition (OCR) and blockchain technologies** for smart access, transcription, and provenance.

Significance of Preserving Manuscripts

- **Fundamental Duty:** To fulfill the objective in **Article 51A (f)** to value and preserve the **rich heritage** of our composite culture.
- **Civilisational Preservation:** The mission safeguards **India's manuscript heritage** and ensures **continuity of traditional knowledge systems**.
 - **Kautilya's Arthashastra preserved in Mysore**, ensures continuity of **ancient governance knowledge**.
- **Knowledge Revival:** It enables **rediscovery of valuable insights** in fields like **science, medicine, and governance**, **strengthening research**.
 - **Bakhshali Manuscript** contains **early discussions on the concept of zero**.



- **Global Soft Power:** It enhances India's cultural diplomacy by projecting its intellectual heritage at the global level.
 - **Recognition of manuscripts** like the **Rigveda Samhita** by **UNESCO** highlights India's intellectual legacy.
- **Public Participation:** It promotes **inclusive governance** by involving communities while **ensuring ownership remains unaffected**.
 - **Timbuktu Manuscripts Project (Mali)** has trained local experts in conservation and **revived traditional bookbinding**.
- **Education & Skill Development:** It supports **NEP 2020**, encourages **youth engagement**, and **builds expertise in manuscript studies**.

The Five Pillars of Gyan Bharatam



Survey & Cataloguing

Mapping and recording manuscripts across India, along with implementing Standardized National Surveys for manuscript identification.



Conservation & Capacity Building

Conserving manuscripts through scientific methods for preservation while training experts to care for them.



Technology & Digitization

Digitizing and protecting manuscripts with smart, sustainable technology for the future.



Linguistics & Translation

Working with academicians & scholars to bring to decode ancient manuscripts to life through translation and transliteration.



Research, Publication & Outreach

Studying and sharing knowledge of manuscripts through publication of critically edited manuscripts.

Challenges in Preservation of Manuscripts

- **Physical Degradation:** Manuscripts made of **fragile materials** deteriorate **due to humidity, temperature changes, insects, and fungi**.
- **Scattered Collections:** Many manuscripts remain **dispersed across private and institutional holdings** and lack proper documentation.
- **Lack of Skilled Experts:** There is a **shortage of trained professionals** in conservation, paleography, and manuscript studies.
- **Technological Limitations:** Digitization faces challenges due to **complex scripts, poor readability, and limited infrastructure**.
- **Linguistic Barriers:** Diversity of **ancient languages** and scripts makes **decipherment and interpretation difficult**.
- **Institutional & Legal Issues:** Limited funding, **weak coordination, ownership concerns**, and risk of **illicit trade** hinder effective conservation.

Conclusion

The Gyan Bharatam Mission **demonstrates how India is extending the transformative power of Digital India into the realm of heritage**. Just as UPI revolutionised payments, GBM is using AI-driven cataloguing, digital repositories, script decipherment, and multilingual platforms, to preserve and share manuscripts. This is not only about conservation but about **making India's timeless wisdom accessible in classrooms, research centres, and digital libraries across the globe**.

OTHER INITIATIVES FOR MANUSCRIPT CONSERVATION



1. National Mission for Manuscripts (NMM)

- Launched in 2003 by Ministry of Tourism & Culture
- Locate Document Preserve Manuscripts



2. National Mission for Manuscripts (NMM)

- ~3600 Rare & Historical Manuscripts
- National Knowledge Repository



3. Asiatic Society of Bengal

- Founded 15 Jan 1784 by Sir William Jones
- Digitisation & Research of Ancient Manuscripts



4. National Archives of India (NAI)

- Non-Current Govt. Records
- Private Papers of Eminent Personalities



5. IGNCA (Indira Gandhi National Centre for the Arts)

- Cultural Resource Centre
- Documentation & Preservation

8.3. NEWS IN SHORTS

8.3.1. SAHITYA AKADEMI AWARDS

Recently, Sahitya Akademi has announced Sahitya Akademi Awards 2025 in 24 Indian languages recognised by it.

- Notable awardees include **Navtej Sarna** for the English novel CRIMSON SPRING and **Mamta Kalia** for the Hindi memoir Jeete Jee Allahabad, among others.

About Sahitya Akademi

- It is also called **India's National Academy of Letters**.
 - It is an **autonomous body under Union Ministry of Culture**.
- It is **India's premier institution for literary promotion, dialogue, and publication, working across 24 Indian languages including English**.
- **Establishment**
 - Idea originated **before independence** (1944 proposal by **Royal Asiatic Society**).
 - Post-independence, Government of India took initiative under **Maulana Abul Kalam Azad**.
 - Formally established in **1952**; inaugurated on **12 March 1954**.
 - Registered as a **society in 1956**, designed as an **autonomous institution** despite being government-initiated.

About Sahitya Akademi Awards

Genesis: Inaugurated in **1954** and given by the **Sahitya Akademi (an autonomous body under Union Ministry of Culture)**.

Objective: To recognise the most outstanding books of literary merit in any of the **major Indian languages recognised by the Akademi**.

- First Awards were given in **1955**.

Languages recognized by the **Akademi include 22 Languages** listed under the **Schedule VIII** of the Constitution with **English and Rajasthani**.

Award is in the form of a casket containing an **engraved copper-plaque and a payment of ₹ 1,00,000/-**

Other Awards given By Sahitya Akademi: Bhasha Samman Awards, prize for translation, Yuva Puraskar, BalSahitya Puraskar.



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9. ETHICS

9.1. NATIONAL SECURITY, AI & ETHICS

Introduction

The U.S. Department of War has recently entered into a partnership with AI firms such as OpenAI to deploy advanced models within classified networks. The agreement was finalised after Anthropic declined to participate, citing concerns over compromising its core safety principles. Specifically, Anthropic emphasised its firm stance against domestic mass surveillance and its commitment to ensuring meaningful human accountability in the use of force, including in the context of autonomous weapon systems.

A similar situation may emerge in India, where rapid AI integration in defence, supported by initiatives like the Defence AI Council and the Defence AI Project Agency, and which may be driven by private firms.

Ethical values upheld by Anthropic

- **Trustworthiness:** By refusing to sign deal, the company showed its commitment to protecting **individuals' data** from **potential misuse**, thereby **reinforcing public confidence**.
- **Courage:** The willingness to take a principled stand against government pressure despite potential financial and strategic costs.
- **Non-maleficence:** It has avoided harm by refusing partnership in applications that could enable misuse or rights violations.

Key Ethical Dilemmas in this matter

- **National Security vs. Moral Responsibility:** Should firms prioritise national interest or their own ethical commitments?
 - In the Anthropic case, **Integrity** is reflected in a **company's principled refusal to compromise its ethical commitments**, even at the cost of losing lucrative government partnerships.
- **Utilitarianism vs. Rights-Based Ethics:** As per utilitarianism approach (Jeremy Bentham, John Stuart Mill), the use of AI in defence by prioritising the greatest security benefit for the majority can be justified.
 - However, rights-based ethics cautions against such actions as they can potentially be misused.
- **Duty Ethics vs. Consequence Ethics:** Can compromising individuals' data and privacy ever be justified in the name of national security and the greater good?
 - The U.S. government and OpenAI adopted a **consequentialist approach**, prioritising national security outcomes, whereas Anthropic followed a **deontological stance**, refusing to cross certain ethical boundaries despite potential monetary benefits.
- **Corporate Autonomy vs. State Control:** Do Private firms have the right to decide how their technologies are used or they have to abide by the government?
- **Autonomous Systems vs. Accountability:** If an AI system malfunctions, commits an error, or violates international humanitarian law, attributing **legal** and **moral responsibility** becomes extremely difficult, allowing commanders to potentially deflect blame onto the machine.
 - Many advanced AI systems lack transparency and explainability, operating as **black boxes** where users cannot fully understand how the system reached a specific conclusion.
- **Surveillance Tools vs. Liberty:** Deploying advanced AI within classified networks risks enabling **large-scale surveillance** based on extensive data about individuals' behaviour, preferences, and personal traits.

“



The price of greatness is responsibility.

– Winston Churchill

”

“



Science without conscience is the ruin of the soul.

– François Rabelais

”

“



Non-cooperation with evil is as much a duty as cooperation with good.

– Mahatma Gandhi

”

Conclusion

The case highlights the urgent need to balance technological advancement with ethical responsibility, ensuring that the pursuit of national security does not undermine fundamental rights and human dignity. As AI becomes central to warfare, robust frameworks rooted in accountability, transparency, and human oversight are essential.

Check Your Ethical Aptitude

You are a senior officer in the armed forces overseeing an AI-enabled drone system deployed in a conflict zone. The system identifies a high-value terrorist target in a densely populated urban area and recommends an immediate strike. However, there is a possibility of civilian presence, and the AI system does not fully explain how it assessed the risk.

Based on the above case study, answer the following questions.

- What are the key ethical issues involved?
- Who are the stakeholders in this situation?
- What options are available to you? Evaluate them.
- What would be your final course of action? Justify.

9.2. HAPPINESS

Introduction

The Wellbeing Research Centre at the University of Oxford, in partnership with Gallup and the UN Sustainable Development Solutions Network, published the annual **World Happiness Report (WHR), 2026**.

Key Highlights of the Report

- **Finland** retained its title as the **world's happiest country for the ninth consecutive year**.
- **India** has shown little progress in 2026, rising from the **116th** from the **118th position in 2025**.
 - In South Asia, India still trails behind several of its neighbours, e.g. **Nepal ranks 99th** and **Pakistan 104th**.
- The **report ranks countries based on key factors**: income, social support, healthy life expectancy, freedom to make choices, generosity, and perception of corruption.
- The report warns that **heavy social media use is linked to a significant decline in well-being among young people**, causing drops in population-level mental health.

What is happiness?

Happiness is a multifaceted concept that holds different meanings across various cultures and individuals. **The World Happiness Report** measures it practically by asking individuals to evaluate their current lives on a **scale of 0 to 10 (the Cantril Ladder)**, treating happiness as an overarching judgment of life quality.

“



Happiness flows not from physical or external conditions, such as bodily pleasures or wealth and power, but from living a life that's right for your soul, your deepest good.

- Socrates

”

Theoretical Framework to understand Happiness

- In **Upanishadic tradition**, **Ananda (Bliss)** is one of the three essential attributes of Brahman, the ultimate reality, along with Sat (existence) and Chith (consciousness).
 - These three aspects form the core of Brahman's nature and are often expressed as **"Sat-Chit-Ananda."** (**Taittiriya Upanishad**).
- **Classical Western philosophy**, particularly **Aristotle's concept of Eudaimonia**, defines happiness not as mere sensory pleasure or material wealth, but as a flourishing life achieved through the **cultivation of moral virtues, rational activity, and responsible social participation**.
- **Buddhist thought** defines ultimate **happiness as Nirvana (or enlightenment)**, a state of inner peace and contentment achieved by overcoming worldly attachments and the cessation of suffering.

- **For Bhutan**, which coined "**Gross National Happiness**" (GNH), happiness is a multi-dimensional measure of well-being that purposefully rejects the purely materialistic metrics of the West.
- **In Utilitarianism** (by Jeremy Bentham) happiness is the **greatest good**, and actions should maximize overall happiness for the greatest number.
- **In Nihilism** (Friedrich Nietzsche) happiness is an illusion, and individuals must create their own subjective meaning to find happiness.
- In the **Madhyastha Darshan philosophy (propounded by A. Nagraj)**, happiness is defined as "**a state of no-conflict, synergy, or a state of being in acceptance**". It is a condition where an individual is in harmony within themselves and with the outside world, requiring both intellectual resolution (understanding) and physical prosperity.

Key ethical concerns about India's poor rankings in the WHR

India's position highlights a **paradox: high economic growth but moderate happiness levels**. This indicates-

- **Inequality and Justice:** Economic gains are unevenly distributed.
 - Violates the principle of distributive justice (Rawls).
- **Trust Deficit:** Perceived corruption and weak institutional trust.
 - Undermines the ethical legitimacy of governance
- **Social Fragmentation:** Rising individualism, social tensions.
 - Weakening of community bonds and empathy
- **Mental Well-being Crisis:** Stress, unemployment, and high social media usage.
 - Neglect of emotional and psychological dignity.

How can India ensure the happiness of her citizens?

- **Promote Ethical Governance:** Ensure transparency, accountability, and reduce corruption.
 - **Example: Digital India initiatives** (e-governance, DBT) reduce leakages and enhance trust.
- **Strengthen Social Capital:** Build trust, community participation, and social harmony.
 - **Example: Self-Help Groups (SHGs) and community-led programs** enhance solidarity and mutual support.
- **Focus on Inclusive Development:** Reduce inequality and ensure last-mile delivery.
 - **Example: Aspirational Districts Programme** targets backward regions for holistic development.
- **Prioritize Mental Health and Well-being:** Recognize happiness beyond physical needs.
 - **Example: National Mental Health Programme** and workplace wellness initiatives addressing stress and depression.
- **Value-Based Education:** Promote empathy, ethics, and civic responsibility.
 - **Example:** Introduction of life skills and value education under the **National Education Policy 2020**.

Teaching happiness in school

- **Key Examples**
 - **India:** The **Delhi Happiness Curriculum**, launched in 2018, reaches nearly 8 lakh students daily. It focuses on **mindfulness, storytelling, and reflective activities**.
 - **UNESCO "Happy Schools":** A global framework that encourages countries to **prioritize "joyful learning" over rote memorization** to improve both mental health and academic resilience.
 - **Latin America:** Countries like Chile and Mexico have implemented large-scale well-being curricula.
- **Impact on Students**
 - **Improved Focus:** Mindfulness exercises help reduce anxiety and increase classroom attentiveness.
 - **Emotional Regulation:** Students report a better ability to manage anger and support peers or family members during stressful times.
 - **Reduced Behavioral Issues:** Schools have noted a decline in bullying, aggressive behavior, and truancy.
 - **Academic Gains:** Happy students often show higher levels of self-efficacy and better memory retention, creating a "virtuous cycle" between well-being and achievement.
 - > For e.g. research in Chile (2024) found that **students who report being "happy at school" consistently perform better in math and language**, even when accounting for socioeconomic factors.

Conclusion

The World Happiness Report 2026 reinforces that happiness is the ultimate test of ethical governance. India's ranking is a reminder that development must be inclusive, compassionate, and just. A truly ethical state is one where citizens not only live longer but live happier, dignified, and meaningful lives.

Ethics Case Study

India has recently shown marginal improvement in the World Happiness Report rankings, moving from 118th position in 2025 to 116th in 2026. However, despite being one of the fastest-growing economies in the world, the country continues to lag behind several of its neighbors in terms of overall well-being.

A district magistrate (DM) in a rapidly urbanizing district observes a worrying trend:

- Rising income levels but increasing stress, anxiety, and social isolation among youth
- High usage of social media leading to declining mental health
- Growing inequality between urban elites and rural migrants
- Declining trust in local governance institutions due to perceived corruption

The DM is under pressure from higher authorities to focus primarily on economic indicators such as infrastructure development and investment inflows. However, civil society groups are demanding initiatives aimed at improving mental well-being, social cohesion, and ethical governance.

At the same time, the DM is considering introducing a "District Happiness Initiative" inspired by programs like the Delhi Happiness Curriculum and Bhutan's Gross National Happiness model. However, there are concerns about feasibility, measurement of outcomes, and administrative burden on already overstretched staff.

Questions

- Identify the key ethical issues involved in the above case.
- Discuss the conflict between economic growth and holistic well-being. Is prioritizing GDP growth ethically justified in this situation?
- Suggest a balanced course of action for the District Magistrate.

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10. SCHEMES IN NEWS

10.1. JAL JEEVAN MISSION

Why in the News?

The Cabinet has approved the extension of the Jal Jeevan Mission (JJM) till December 2028 to achieve universal rural tap water coverage

Objectives of the Scheme	Salient Features of the Scheme
- To provide Functional Household Tap Connection (FHTC) to every rural household with 55 LPCD (litres per capita per day), ensuring Har Ghar Jal. - To provide functional tap connections to Schools, Anganwadis, GP buildings, Health centres, etc. - To promote voluntary ownership among the local community by way of contribution in cash, kind, and/ or labour (shramdaan). - To bring awareness to various aspects and the significance of safe drinking water. - To foster convergence with other government programs, such as Swachh Bharat Mission (SBM), MGNREGA, and SBM-Gramin, to maximize efficiency and resource utilization.	Key Features Launched: 2019 Ministry: Ministry of Jal Shakti Type: Centrally Sponsored Scheme Release of funds: It is contingent upon the utilization of available Central funds and matching State shares. - Performance grant to States/ UTs is provided based on functionality assessment survey. Monitoring: Integrated Management Information System (IMIS) and JJM-Dashboard have been put in place. Decentralized: JJM provides for Village Action Plan (VAP) for long-term drinking water security. VAP focuses on: drinking water sources; grey water reuse; water supply systems; operation & maintenance. Paani Samitis: Paani Samitis or Village Water and Sanitation Committees (VWSCs) is responsible for the regular operation and maintenance of the village water supply system. Water Quality Monitoring: Promotes regular testing of water samples at source and delivery points. Public access to water quality testing labs is available at affordable rates. Women participation & capacity building: At least 50% members in Paani Samitis with provision of training to a minimum of five women per village for water quality testing using FTKs (Field Test Kits). Key Resource Centres (KRCs): To enhance capacity various governmental and non-governmental academic institutions, think tanks, and training institutions are involved as KRCs. National WASH Expert (NWEs): National Centre for Drinking Water, Sanitation, and Quality empanels and deploys National WASH Experts for on-the-ground verification and technical assistance to States. - NWEs provide star ratings to villages and feedback to States based on the JJM implementation status. Priority: - Emphasis on Districts Affected by Japanese Encephalitis (JE) and Acute Encephalitis Syndrome (AES). - Regions with groundwater containing geo-genic contaminants such as Arsenic, Fluoride, Iron, salinity, heavy metals, etc. Reducing the Non-Revenue Water: Non-revenue water refers to water that is pumped and then lost or unaccounted for.

- **Key initiatives**
 - **Rural WASH Partners Forum (RWPF):** To drive innovation in the WASH sector through technology, knowledge product development, and information sharing.
 - **Nal Jal Mitra Programme:** The NJMP aims to train local villagers as "Nal Jal Mitras," equipping them with skills to operate, maintain, and repair piped water supply schemes in their villages.
- **Progress and Achievements**
 - **Coverage:** Tap water coverage increased from **3.23 crore (16.7%) in 2019 to 15.83 crore (≈81.8%) rural households in 2026.**
 - **Functionality Assessment (2024):** 98.1% households in Surveyed Villages had tap connections, 84% received water as per schedule, 80% received minimum 55 LPCD and 76% tap connections were found functional.
 - **Community-led achievements:** Large-scale participation through **Jal Mahotsav and Jal Arpan** reflects increased community ownership and sustainability.
 - The **World Health Organization (WHO)** estimates that achieving JJM's goals will save over **5.5 crore hours daily**, primarily for women, otherwise spent collecting water.



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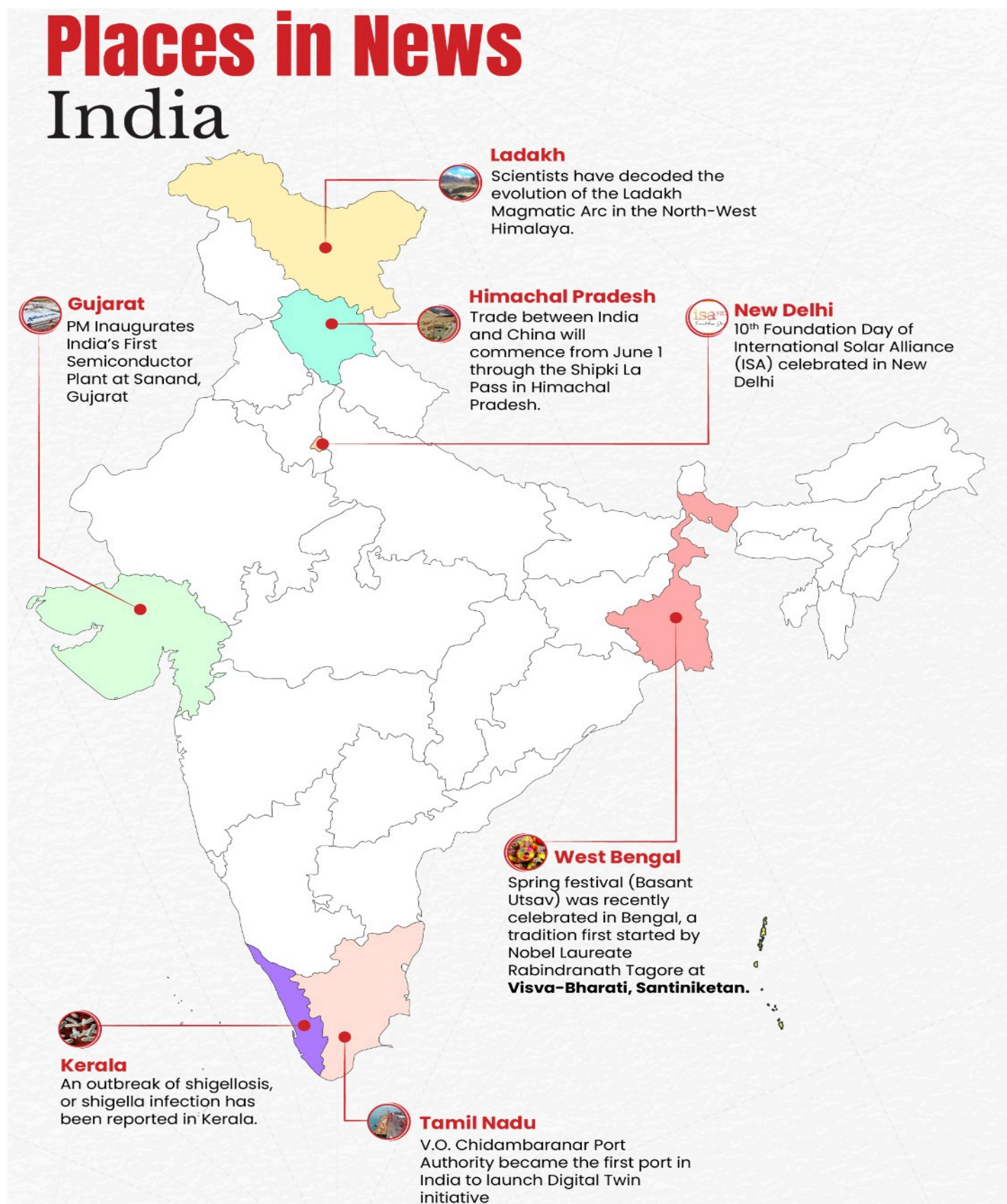


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11. PLACES IN NEWS



Places in News World



Lebanon (Capital: Beirut)

Recently, there have been discussions in Israel about extending the country's northern border to the Litani River.



Panama Canal

Panama Canal is functioning at top capacity as Iran war triggers more LNG vessel traffic.



Cameroon (Capital: Yaounde)

WTO (World Trade Organisation) Ministerial Conference (MC14) concludes in Yaoundé, Cameroon



Chile (Capital: Santiago)

Scientists are studying gypsum deposits in the **Salar de Pajonales** (Atacama Desert, Chile) because the region closely resembles the harsh environmental conditions of Mars.



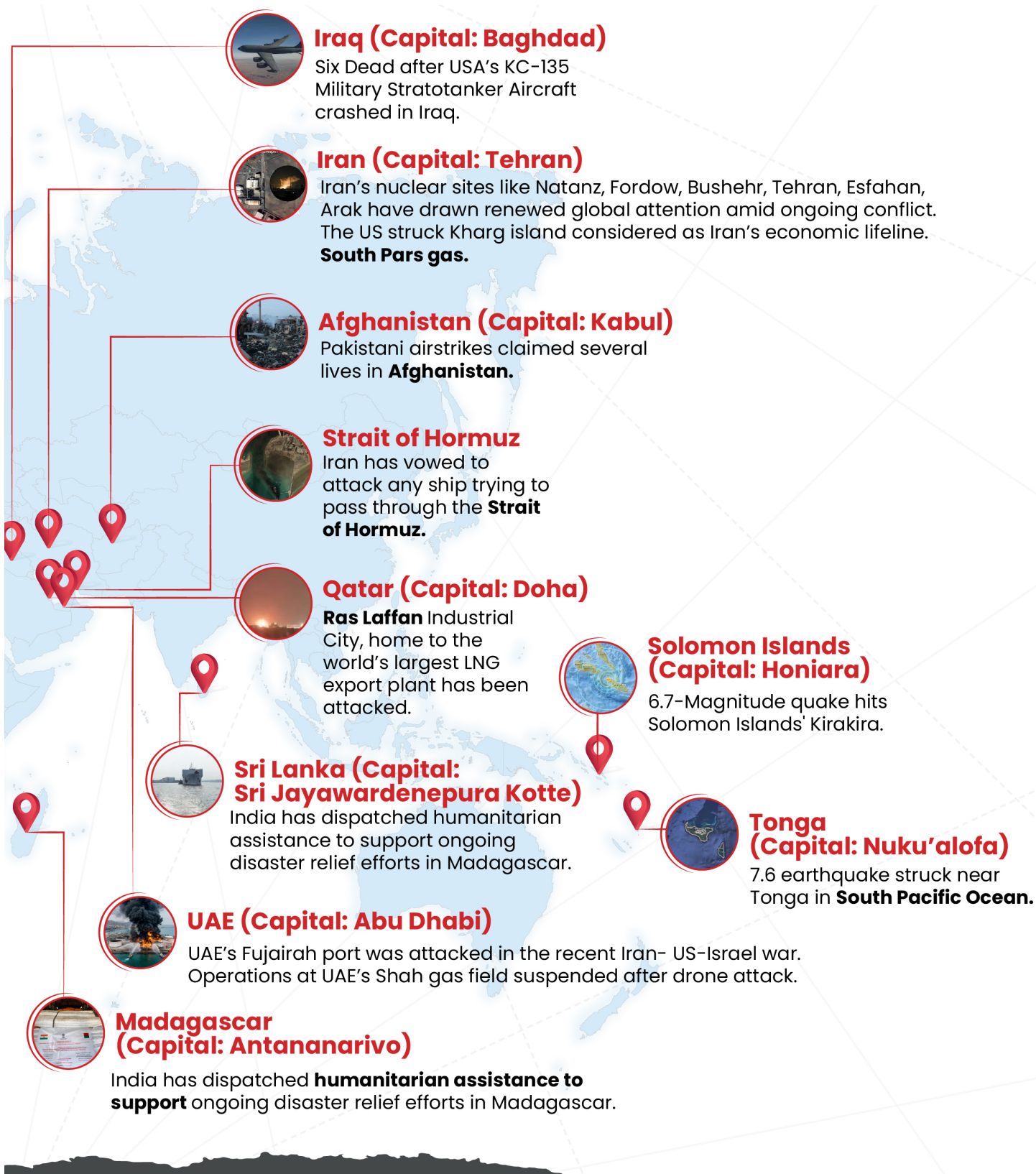
South Sudan (Capital: Juba)

Violence escalated in Jonglei state of South Sudan.



Malawi (Capital-Lilongwe)

India has sent 1,000 Metric Tons of rice to Malawi for drought relief.



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