

SARAANSH



Monthly Current Affairs

October 2025

✧ **Polity and Governance**

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✧ **Environment & Ecology**

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✧ **History, Art & Culture**

✧ **Social Issues**

✧ **Facts for Prelims**

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(Coverage from 24th September 2025 to 23rd October 2025)

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Polity & Governance

Defamation

A judge of the **Supreme Court of India** highlighted the need to **decriminalise defamation**, citing concerns over its increasing **misuse** by political leaders and private individuals to settle personal and political disputes.

Defamation

- **About:** Defamation is the act of speaking, writing, publishing, or making signs against someone with the intention to harm their reputation.
 - It can concern a **living person, a company, association, or group, or a deceased individual**, with harm to the deceased considered in terms of its impact on their family or close relatives.
- **Types of Defamation:**
 - **Libel:** Defamatory statements made in a **permanent form**, e.g., writing, images, published works.
 - **Slander:** Defamation through **spoken words or temporary expressions**.
 - Courts interpret defamation **subjectively**, based on proof and circumstances.
- **Regulation in India:**
 - **Indian Penal Code (IPC) Sections 499 & 500 (now Bharatiya Nyaya Sanhita, 2023):** Defines defamation and prescribes its punishments.
 - ❖ Defamation can be criminal or civil, depending on severity and evidence. Criminal cases require strong proof and the presence of reasonable doubt.
 - Criminal defamation serves as a **stronger deterrent than civil penalties**, upholds public interest in protecting reputation, and safeguards **vulnerable groups from discrimination or hate speech**.
- **Judicial Pronouncement:**
 - **Subramanian Swamy Vs. Union of India, 2016:** The upheld the **constitutional validity of criminal defamation**. It ruled that protecting reputation is part of the **fundamental right to life under Article 21**.
 - ❖ Criminal defamation under IPC was held to be a "reasonable restriction" on free speech under Article 19(2).
 - ❖ Article 19(2) of the Indian Constitution permits the State to impose "reasonable restrictions" on the right to freedom of speech and expression.

Need to Decriminalise Defamation

- **Prevent Misuse:** Criminal defamation is often used by individuals or political figures to **settle personal or political scores**.

- **Protect Freedom of Speech:** Criminal defamation threatens free speech and press freedom. Decriminalisation would **reduce the chilling effect on journalists, activists, and citizens** expressing opinions.
- **Civil Remedies are Sufficient:** Reputation can still be protected through **civil defamation suits** without criminal penalties. Many democracies like the US treat **defamation as a civil matter** rather than a criminal offense.
 - Reputational harm is a **civil injury**; imprisonment is excessive and violates the principle of proportionality.
- **Judicial Economy:** Criminal cases add to the already massive backlog in courts; civil remedies are **more efficient and less burdensome**.

Measures to Strengthen Defamation Laws While Protecting Free Speech in India

- **Decriminalise Private Defamation:** Restrict **criminal liability only to matters of public interest or national security**, shift private disputes to civil law.
- **Strengthen Civil Remedies:** Fast-track courts for defamation cases, clear compensation norms, and alternative dispute resolution for quicker justice.
- **Define Clear Standards:** Re-examine the **2016 judgment** in light of present misuse and provide judicial or legislative guidelines to distinguish **fair criticism, satire, and irony** from **malicious defamation**.
- **Safeguard Press Freedom:** Introduce protections for journalists, whistleblowers, and researchers acting in public interest.
- **Prevent SLAPP Suits:** Enact **anti-strategic lawsuit against public participation (SLAPP)** legislation to stop misuse of defamation cases by powerful individuals or corporations.
- **Awareness & Media Literacy:** Educate citizens on responsible speech and remedies available without resorting to criminal cases.

Simultaneous Elections in India

Arvind Panagariya, Chairman of **16th Finance Commission**, noted that **frequent elections hinder reforms** and highlighted that the **simultaneous elections** improve governance and policy implementation.

Simultaneous Elections

- **About:** Simultaneous elections (One Nation, One Election) refer to conducting elections for the **Lok Sabha and all State Legislative Assemblies** at the same time. This does not mean voting happens across the country on the same day, polls can still be held in phases.

- In the **first four election cycles (1952–1967)**, Lok Sabha and State assembly polls were held simultaneously, but repeated premature dissolutions of both Parliament and assemblies later disrupted this cycle, leading to staggered elections.
 - The **Constitution (129th Amendment) Bill, 2024**, and the **Union Territories Laws (Amendment) Bill, 2024**, were introduced following the recommendations of the **High-Level Committee on Simultaneous Elections, 2023** to give effect to “One Nation, One Election.”
 - Both bills have been referred to the **Joint Parliamentary Committee** for detailed examination.
- **Key Provisions of the Bills:**
- **The Constitution (129th Amendment) Bill, 2024:** Introduces **Article 82A** to align the terms of the Lok Sabha and State Assemblies. It empowers the **ECI** to conduct simultaneous elections and allows the ECI to declare the end date of each State Assembly’s term when notifying election schedules.
 - ❖ The Bill proposes an **amendment to Article 83**, stipulating that if the Lok Sabha is dissolved before completing its full term, the next Lok Sabha will serve only the unexpired portion of the term.
 - ❖ Similar amendments are proposed for **Article 172** regarding the duration of State Legislatures.
 - **Union Territories Laws (Amendment) Bill, 2024:** Proposes amendments to the Government of Union Territories Act, 1963, the Government of National Capital Territory of Delhi Act, 1991, and the Jammu and Kashmir Reorganisation Act, 2019, to align the term of Union Territories’ Legislative Assemblies with that of the Lok Sabha.
 - **Local bodies (Municipalities and Panchayats)** are not included in the proposed bill.

High-Level Committee on Simultaneous Elections, 2023

- The Committee headed by former President **Ram Nath Kovind**, proposed restoring a cycle of **simultaneous polls in two stages**, first synchronising Lok Sabha and state assembly elections, followed by aligning municipal and panchayat polls within 100 days.
- It recommended that to synchronise elections, the President will declare the first sitting of the Lok Sabha as the “**appointed date**.” State assemblies elected after this date will serve only until the next parliamentary polls, ensuring future simultaneous elections.
 - In cases like a hung House or no-confidence motion, fresh polls will be held for the remainder of the term.
- It also called for a **single electoral roll and photo ID system** prepared jointly by the **Election Commission and state election bodies** to ensure smooth conduct of simultaneous polls.

Impact of Frequent Elections on Governance in India

- **Policy Hesitation:** The Union government may delay reforms, fearing electoral backlash in upcoming state elections.
- **Interrupted Project Implementation:** The **Election Commission of India (ECI) Model Code of Conduct (MCC)** halts procurement, project execution, and policy decisions during election periods.
- **Short-Term Fiscal Focus:** Governments may **focus on populist spending** and subsidies to win votes, rather than long-term fiscal planning.
 - Election cycles spread over five years can multiply fiscal pressure, forcing uneven resource allocation.
- **Identity Politics and Social Fragmentation:** Frequent elections often intensify **identity-based mobilization around caste, class, or religion**, thereby deepening social divisions and weakening long-term national cohesion.
- **Administrative Disruptions:** Bureaucratic functions and consultations, such as those by the **Finance Commission**, can be delayed.
- **Declining Democratic Participation:** Repeated electoral cycles can lead to **voter fatigue, lowering enthusiasm and turnout**, which undermines the quality and inclusiveness of democratic participation.

Need for Simultaneous Elections

- **Promotes Consistency in Governance:** Focus shifts from campaigning to **developmental activities and policy implementation**. Simultaneous elections cut costs associated with multiple election cycles, freeing resources for **economic growth**.
- **Prevents Policy Paralysis:** Reduces prolonged enforcement of the **Model Code of Conduct (MCC)** and allows governments to ensure smoother policy implementation and **better continuity in governance**.
 - Allows parties to dedicate efforts to **public welfare** rather than frequent elections.
- **Mitigates Resource Diversion:** Limits repeated deployment of **polling officials and civil servants**, freeing them for core duties.
- **Enhances Political Opportunities:** Simultaneous elections require more candidates at all levels, giving newer leaders space to emerge and reducing dominance by a few big names, while promoting inclusivity and wider representation within parties.

Challenges Associated with Simultaneous Elections

- **Logistical Burden:** Conducting elections for **over 96 crore voters** at once means managing over **1 million polling**

booths, huge security forces, and personnel deployment on a scale never attempted before.

- Updating electoral rolls, training staff, coordinating security, and running voter education drives across **all states at the same time will be highly complex.**
- **Technology Infrastructure:** In the 2024 elections alone, **1.7 million Electronic Voting Machines** and **1.8 million Voter Verified Paper Audit Trails (VVPATs)** were used. Simultaneous polls would need even more machines, backups, and foolproof systems.
- **Federal Concerns:** Cutting short or extending the terms of state assemblies for alignment **may weaken the federal spirit of the Constitution.**
- **Accountability:** With fewer election cycles, governments and leaders may face less frequent public scrutiny.
- **Legal Uncertainty:** Amendments and new processes could be challenged in courts, delaying or complicating implementation.
- **Regional Disparities:** Smaller states and regional parties fear being sidelined in **“nationalized” elections.**
 - National issues and big parties may dominate campaigns, reducing focus on local problems and regional parties.
- **Constitutional Amendments Required:** Simultaneous elections would need amendments to **Articles 83, 85, 172, and 174** to fix the tenure and prevent premature dissolution of Lok Sabha and State assemblies.
 - **Article 356** would also need modification to address issues like **President’s Rule**, which can dissolve State assemblies prematurely.

Committee/Commission Recommendations on Simultaneous Elections

- **Election Commission of India (1983):** Recommended holding simultaneous elections for the House of the People (Lok Sabha) and the Legislative Assemblies of States.
- **Law Commission 170th Report (1999):** Suggested methods for simultaneous elections in two phases.
- **Parliamentary Standing Committee on Law & Justice (2015):** Supported the idea, citing cost savings and smoother governance. Emphasised the need for political consensus and gradual implementation.
- **Draft Law Commission Report (2018):** The draft report stated that simultaneous elections require constitutional amendments and proposed a two-phase synchronization.

Reforms to Facilitate the Transition to Simultaneous Elections

- **Legal Clarity:** Establish clear procedures, schedules, and necessary constitutional amendments for synchronized elections.
 - Establish clear provisions for handling premature dissolutions and by-elections.
- **Strengthening Electoral Infrastructure:** Create a unified electoral roll for all three tiers, use technology for voter verification and results, and upgrade EVM and VVPAT management.
- **Public Awareness Campaigns:** Educate citizens through nationwide campaigns, NGOs, and community organizations on the benefits and process of simultaneous elections.
- **Capacity Building:** Train election officials on new technologies and procedures to ensure smooth and efficient implementation.
- **Adjust Election Timings:** Advance or postpone certain state elections to synchronize cycles.

Driving Digital Transformation in Gram Panchayats

The **Ministry of Panchayati Raj (MoPR)** has launched **digital reforms** for **Gram Panchayats**, aligned with **Digital India** and **Atmanirbhar Bharat**, to promote **transparent, efficient, and inclusive rural governance.**

Key Digital Initiatives Related to Gram Panchayats

- **SabhaSaar:** Launched in **August 2025**, SabhaSaar is an **AI tool** that produces structured **minutes of meetings** from Gram Sabha and other Panchayat gatherings. Integrated with **Bhashini**, it supports **14 Indian languages**, providing real-time, **accurate**, and **unbiased records.**
- **SVAMITVA: Survey of Villages and Mapping with Improved Technology in Village Areas Scheme** grants rural households legal **ownership papers** for their homes and land facilitating **bank loans**, dispute resolution, and asset utilisation.
 - As of **August 2025**, under the **SVAMITVA Scheme**, **2.63 crore property cards** have been issued across **1.73 lakh villages.**
- **BharatNet:** BharatNet aims to deliver **broadband** via **Wi-Fi hotspots**, **Fibre to the Home (FTTH)** connections, and other services, with over 13 lakh **FTTH connections** commissioned so far.
- **eGramSwaraj:** This comprehensive application integrates core **Panchayat** functions like **planning, budgeting, accounting, monitoring, reporting, asset management**, and online **payments**, serving over 2.7 lakh **Panchayati Raj Institutions** across 28 **States** and 6 **UTs.**
- **Meri Panchayat App:** The **Meri Panchayat App** functions as an integrated mobile governance platform, promoting **transparency, accountability, and citizen participation** in **Panchayat** affairs. It serves over 25 lakh **elected representatives** and nearly 95 crore rural residents across **2.65 lakh Gram Panchayats.**

- **Panchayat NIRNAY:** The portal schedules meetings, notifies citizens of agendas, records Gram Sabha decisions, and replaces paper-based processes with automated workflow.
- **Gram Manchitra:** Gram Manchitra provides a unified digital map to visualise developmental works, align them with the Gram Panchayat Development Plan (GPDP), identify project sites, track assets, estimate costs, and assess impacts.

Factors Limiting Digital Reforms in PRIs

- **Infrastructure Deficit:** Despite BharatNet, remote Panchayats face slow internet, frequent power outages, inadequate hardware (computers, printers), and limited broadband infrastructure, restricting the use of online services like eGramSwaraj.
- **Digital Literacy Gap:** A significant portion of rural residents and elected representatives lack basic digital skills, limiting effective use of apps like Meri Panchayat. Inadequate training for Panchayat secretaries and officials on complex platforms leads to errors or non-use.
- **Linguistic and Cultural Barriers:** Language diversity and lack of support for local dialects may limit accessibility despite multi-language tools. Low awareness and resistance to change due to reliance on traditional methods hinder adoption of digital tools.
- **Implementation Hurdles:** The effectiveness of Gram Manchitra relies on accurate data; outdated or incorrect input leads to flawed planning.
 - Lack of local technical support threatens maintenance and sustainability, while overlapping and siloed systems increase workload and cause frustration.
- **Gender Digital Divide:** Women in rural areas face lower literacy and limited phone access, leading to a gender digital divide.

Suggestions

- **Ensuring Reliable Access:** Augment BharatNet with last-mile Wi-Fi hotspots or broadband kiosks set up by local entrepreneurs. Provide solar backup in Panchayat offices. Standardize hardware with functional computers, printers, scanners, and dedicated internet.
- **Deepening Capacity Building:** Establish Digital Sathis — trained local youth providing on-ground support. Develop vernacular, video-based training for apps like eGramSwaraj and Meri Panchayat.
 - Incentivize usage by linking timely platform use to performance-based rewards or faster fund disbursements.
- **Enhancing User Experience:** Create a unified login portal (e.g., Digital Panchayat Dashboard) for apps like eGramSwaraj, Gram Manchitra etc with simplified interfaces featuring intuitive, icon-based designs.

- **Fostering Participatory Governance:** Establish women-operated digital literacy centres and self-help groups to use apps like Meri Panchayat.
 - Add offline and voice-based features like IVR (Interactive Voice Response) to enable data access and grievance reporting despite internet or literacy limitations.
- **Support and Monitoring Framework:** Set up a Panchayat IT Helpdesk with a toll-free helpline for real-time technical support, and prioritise quality of use via dashboard analytics over mere adoption.

India's Vaccination Drive

India's Universal Immunisation Programme (UIP), the world's largest, vaccinates 2.6 crore infants and 2.9 crore pregnant women annually.

- Despite these significant numbers, challenges persist in reaching remote and migratory populations, clusters with low awareness, and communities grappling with vaccine hesitancy.

Status of Immunisation in India

- **UIP:** It is one of India's most comprehensive public health initiatives, aiming to provide life-saving vaccines to millions of newborns and pregnant women each year.
 - **Initially launched in 1978 as the Expanded Programme on Immunization**, it was rebranded as the UIP in 1985 when its coverage was extended beyond urban centres to rural areas, addressing disparities in healthcare access.
 - The UIP offers free immunisation against 12 diseases.
 - ❖ **Nationally:** Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, Childhood Tuberculosis, Hepatitis B, and Meningitis/Pneumonia (caused by Haemophilus Influenzae type B).
 - ❖ **Sub-nationally:** Rotavirus, Pneumococcal Pneumonia, and Japanese Encephalitis.
- **Mission Indradhanush:** The Ministry of Health and Family Welfare launched Mission Indradhanush in December 2014 as a special drive to vaccinate all unvaccinated and partially vaccinated children under UIP. To further intensify the immunization programme, the Intensified Mission Indradhanush (IMI) was launched in October 2017.
 - **Intensified Mission Indradhanush (IMI) 5.0, 2023** is a catch-up vaccination campaign for children up to 5 years of age and pregnant women, who were left out.
 - The Full immunization coverage of the country is around 98% for the FY 2024-25.
- **Key Achievements**
 - **Polio Free:** India's achievement of polio-free status in 2014 represents one of the most significant successes in global public health.

- **Tetanus Elimination:** India is the first country to be officially acknowledged as being **Yaws-free**. India was validated for **Maternal and Neonatal Tetanus Elimination (MNTE) in April 2015**, much ahead of the global target date of December 2015.
- The **U-WIN Digital Platform:** It was **launched nationwide** to provide **end-to-end vaccination tracking** for pregnant women and children up to 16 years, **building on the success of Co-WIN**, and enabling **anytime-anywhere access**, especially for **migratory populations**.
- **Logistics and Vaccine Stock Management:** The **electronic Vaccine Intelligence Network (eVIN) system** is a real-time monitoring platform that manages vaccine logistics and is integrated into the broader health infrastructure under the **Pradhan Mantri Ayushman Bharat Health Infrastructure Mission**.

Challenges in Achieving Universal Immunization

- **Remote Populations:** Reaching remote and tribal, remains particularly difficult in India due to **geographic isolation, weak health infrastructure, and high mobility of communities**, which **significantly limits the reach of routine immunisation services**.
 - Especially in states like **Uttar Pradesh, Bihar, and parts of the Northeast**.
- **Vaccine Hesitancy:** Vaccine hesitancy continues to persist in **specific clusters**, often **driven by misinformation, cultural beliefs, and anti-vaccine narratives**.
- **Pandemic Disruption:** The **COVID-19 pandemic** caused **unprecedented disruption to routine immunisation services**, resulting in **temporary immunity gaps and localized resurgent measles outbreaks** across India, particularly in areas with **previously low coverage**.
- **Low Awareness:** Clusters with **low awareness and limited access to healthcare services** continue to **substantially hinder universal coverage**, particularly in **densely populated slums and marginalised areas**, where **health system outreach is often inadequate**.

Suggestions

- **Strengthening National Immunization Days (NIDs):** The success of initiatives like **National Immunization Days (NIDs)** should be **replicated** in other vaccination drives, ensuring that special campaigns, like the Pulse Polio program, reach every child, year after year.
- **Expanding Strategic Interventions:** Continued focus on **advocacy, social mobilization, interpersonal communication** at the family level, and media engagement needs to be intensified to raise awareness and drive higher immunization coverage.
- **Strengthening Task Forces at All Levels:** Initiatives, such as **strengthening State, District, and Block Task Forces on**

Immunization (STFI, DTFI, BTFI), should be further emphasized to ensure better coordination and effective program implementation across all regions.

- **Scaling Up Supplementary Immunization Campaigns:** More **extensive supplementary immunization campaigns** should be conducted in areas with low coverage to target **left-out and drop-out children**, as well as pregnant women, ensuring no one is left behind.
- **Enhancing Village Health and Nutrition Days (VHND):** Organizing more frequent and widespread VHNDs can ensure greater access to immunization services, particularly in remote and underserved villages.
- **Promoting Digital Tracking with UWIN Portal:** Expanding the use of the **UWIN portal** for digital registration and tracking of vaccinations should be a priority to ensure accurate record-keeping and easy monitoring of immunization events.

Provincial Citizenship

The term **“provincial citizenship”** is gaining traction in academic and policy debates, especially in light of domicile policies in States like Jharkhand, Jammu and Kashmir (J&K), and Assam.

- Its ascendancy signals a shift toward more exclusionary, nativist politics that may contest the **constitutional ideal of a singular, equal Indian citizenship**.

Provincial Citizenship

- **About:** Provincial Citizenship is an unofficial, politically constructed notion of belonging to a **specific Indian state**. It emerges from nativist politics, tied to the idea of being “native,” “indigenous,” “local,” or “son of the soil.”
 - It is **not part of the Constitution**, but is used in politics to give **special rights to “locals”**. This challenges the constitutional guarantee of a singular Indian citizenship under **Articles 5–11**.
- **Reasons Behind Rise in Provincial Citizenship Demand:**
 - **Economic Competition:** Locals fear that migrants take away jobs and access to resources. Provincial Citizenship offers recognition to historically excluded communities and counters demographic pressure from large-scale migration.
 - **Cultural Anxiety:** Migration brings perceived threats to language, tradition, and cultural homogeneity.
 - ❖ Provincial Citizenship aims to safeguard the culture, and land of indigenous groups.
 - **Political Vacuum:** There is no central law to regulate State-level domicile rules or to ensure uniformity in domicile policies across States.

Judicial and Policy Safeguards:

- **Supreme Court Interventions:** In *Sunanda Reddy v. State of Andhra Pradesh (1995)*, the court struck down 100% reservation for domiciles in postgraduate medical courses, emphasizing that reservations should not compromise merit and efficiency.
 - ❖ In *Dr. Pradeep Jain v. Union of India (1984)*, the SC ruled that reservations based on place of birth

or residence are prima facie unconstitutional under **Article 16(2)**.

- **States Reorganisation Commission (SRC) (1955):** Noted that domicile exclusions erode national unity.
 - ❖ The constitutional framework currently sees citizenship as **singular and national**, regulated by the Citizenship Act, with non-discrimination and mobility guarantees in fundamental rights.

Aspect	National Citizenship	Provincial Citizenship
Legal Status	Constitutionally defined under Articles 5–11	Not legally recognized; a political and social construct
Governing Law	Citizenship Act, 1955	No formal law; based on State-level political practices
Scope	Applies uniformly across India	Applies within specific States
Rights Guaranteed	Equal rights to reside, work, and access public services	Prioritizes locals; may restrict access for internal migrants
Constitutional Backing	Supported by fundamental rights (Art. 14, 15, 16, 19)	Often contradicts fundamental rights.
Basis of Identity	Indian nationality	State-level identity (e.g., local, native, son of the soil)
Federalism Impact	Strengthens integration through uniform citizenship	Boosts State autonomy, but strains Centre-State balance

Concerns Associated with Provincial Citizenship in India

- **Fragmentation of Citizenship:** Undermines the idea of one equal Indian citizenship by creating layered identities.
- **Constitutional Tensions:** As noted by SRC, 1955, domicile-based rules restrict jobs, education, and welfare, conflicting with Articles 14 (equality), 15 (no discrimination), 16 (equal opportunity in public employment), and 19 (freedom of movement and residence).
- **Exclusion of Migrants:** Internal migrants struggle to access jobs, housing, education, and welfare in host States.
- **Rise of Nativist Politics:** Encourages “sons of the soil” movements, outsider hostility, and regionalism.
- **Judicial Burden:** Courts face a flood of litigation over domicile and reservation policies, further **burdening the already overburdened judiciary**.
- **Economic Slowdown:** Restricting migrant labour reduces workforce mobility, affecting productivity and urban economies.

Reforms Needed to Balance State
Autonomy with National Citizenship

- **Parliamentary Legislation on Domicile:** SRC 1955 recommended that domicile rules should be replaced by **appropriate Parliamentary legislation**. This ensures States to not override **fundamental rights** or restrict core national citizenship entitlements.
- **Strengthen Migrant Protections:** Expand portability of welfare benefits beyond food (**One Nation One Ration Card**) to healthcare, education, housing, and employment.
 - Ensure internal migrants enjoy equal rights irrespective of their **State of residence** through initiatives like

e-Shram portal which enables social security for unorganised workers.

- **Balanced Federalism:** Allow States limited scope for residence-based benefits and prevent States from denying core rights under **Articles 14, 15, 16, and 19**.
- **Election Commission Oversight:** Regulate “sons of the soil” electoral campaigns to prevent **xenophobic politics**. Integrate inclusive safeguards into party recognition and funding rules.
- **Public Awareness & Inclusion:** Launch campaigns highlighting migrants’ contribution to urban economies. Counter xenophobia and promote social integration.

People’s Plan Campaign (PPC) 2025–26

The **Ministry of Panchayati Raj** launched the **People’s Plan Campaign (PPC) 2025–26: “Sabki Yojana, Sabka Vikas”** across all States and Union Territories.

- The campaign initiates the nationwide process of preparing **Panchayat Development Plans (PDPs)** for the **Financial Year 2026–27**.

People’s Plan Campaign (PPC)

- **About:** Launched on **2nd October 2018**, the **PPC** (also known as jan yojana abhiyan) aims to strengthen participatory, transparent, and accountable local governance by **involving citizens** in preparing **Panchayat Development Plans (PDPs)** at the Gram, Block, and District levels.
- **Objectives:**
 - Prepare **inclusive and convergent development plans** (Gram PDPs, Block PDPs, District PDPs).
 - The campaign seeks to achieve effective **localization of Sustainable Development Goals (SDGs)** by integrating

the nine thematic approaches of LSDGs into PDPs and by incorporating Village Prosperity and Resilience Plans (VPRPs) prepared by Self-Help Groups (SHGs) federations.

- To promote **gender-responsive governance** via Women Elected Representatives (WERs) and community participation.
- It ensures **transparency** through public information campaigns and Gram Sabha disclosures.
- **PPC Achievement:** According to the **eGramSwaraj Portal**, as of July 2025 more than 18.13 lakh PDPs have been uploaded from 2019–20 to 2025–26.
- **PPC 2025–26 Highlights:**
 - Gram Sabhas will **review previous GPDs** using **eGramSwaraj, Meri Panchayat App, and Panchayat NIRNAY**, assess progress, address delays, and prioritize unfinished projects, especially those linked to **unspent Central Finance Commission grants**.
 - ❖ The process will be guided by the **Panchayat Advancement Index (PAI)**, supported by **SabhaSaar**, with a focus on improving **Panchayats' Own Source Revenue (OSR)** and enhancing **community participation**.
 - The campaign focuses on **tribal empowerment** via **Adi Karmayogi Abhiyaan**, enhancing **transparency, accountability, and inclusive rural development**.

Role of Panchayats in India's Development Framework

- **Constitutional Obligation:** The **Gram Panchayat**, as the foundational unit of the **three-tier Panchayati Raj system**, was institutionalized by the **73rd Constitutional Amendment Act, 1992**, to strengthen **participatory democracy and decentralized governance** in rural India.

- **Article 243G** empowers Panchayats to **plan and implement programs for economic development and social justice**, making them **autonomous units of local self-government**.

- **Service Delivery & Welfare:** Panchayats are directly responsible for providing **essential infrastructure and services**, including **water supply, sanitation, roads, street lighting, health, education, and nutrition**, and for implementing **welfare schemes and community development programs**.
- **Development Planning:** Annual **Gram Panchayat Development Plans (GPDs)** are prepared in **participatory Gram Sabhas**, ensuring local priorities are incorporated.
 - Plans are **comprehensive**, covering the **29 subjects of the Eleventh Schedule**, and **resource-aligned**, leveraging Central and State funds.
 - **Block (BPDs) and District Panchayat Development Plans (DPDPs)** ensure **convergence, coordination, and effective scaling** of initiatives.
- **People's Planning: Self-Help Groups (SHGs)** contribute through **Village Prosperity and Resilience Plans (VPRPs)**, embedding community-driven, gender-sensitive, and socially inclusive development approaches.
- **Localization of SDGs:** Panchayats play a key role by integrating the **nine thematic approaches of SDGs** (poverty free, healthy, child friendly, water sufficient, clean & green, self-sufficient infrastructure, socially secured, good governance and women friendly villages) into local plans.
 - By incorporating these SDG themes, Panchayats act as essential instruments to **translate national and global development goals** into measurable and impactful outcomes at the grassroots level.

Challenges	Actionable Strategies
■ Gram Panchayats often lack trained personnel and technical expertise for effective planning, as highlighted by the Second Administrative Reforms Commission (ARC).	■ Train Panchayat officials and facilitators through State Institutes of Rural Development & Panchayati Raj (SIRD&PRs).
■ Panchayats earn only 1% of their revenue through taxes. The majority of their revenue comes from grants provided by the Centre and the States. ■ Limited OSR reduces autonomy in implementing development priorities. ■ Some regions have also reported non-receipt of funds under key schemes, impacting their functioning.	■ Incentivize OSR mobilization and performance-linked grants recommended by the 15th Finance Commission.
■ Poor connectivity in remote areas hampers e-governance and real-time monitoring via platforms like eGramSwaraj.	■ Expand BharatNet, digital infrastructure, train stakeholders on eGramSwaraj, Panchayat NIRNAY, and Meri Panchayat App.
■ Multi-departmental convergence remains weak, affecting holistic planning.	■ Set up convergence cells at block and district levels for integrated planning across schemes like MGNREGA, PM Awas Yojana, Swachh Bharat Mission (SBM), and health programs as seen in Prime Minister Dhan-Dhaanya Krishi Yojana (PMDDKY).

Passive Euthanasia in India

In June 2025, the UK's House of Commons passed the **Terminally Ill Adults (End of Life) Bill**, which allows **passive euthanasia** and has now revived the global debate on the **right to die with dignity**.

- India recognises **passive euthanasia through Supreme Court (SC) of India rulings**, but its challenging implementation underscores the need to **reform the framework** to uphold the **constitutional promise of dignity in death**.

Euthanasia

- About:** Euthanasia or “mercy killing” refers to deliberately **hastening a person's death to prevent further suffering** from incurable or terminal illness.

Types of Euthanasia:

- Active Euthanasia:** Directly causing a patient's death, such as through a lethal injection. Forms of active euthanasia include:
 - ❖ **Voluntary:** Patient consciously chooses death.
 - ❖ **Non-voluntary:** Decision made for an incompetent patient.
 - ❖ **Involuntary:** Death caused without consent.
- Passive Euthanasia:** The **withdrawal or withholding of life-support or medical treatment** when a patient is terminally ill and has no realistic chance of recovery, allowing death to occur naturally.
 - ❖ This aims to protect the **right to die with dignity** and prevent prolonged, futile suffering in irreversible medical conditions.

Legal Status in India:

- Active Euthanasia:** It is **illegal** in India. The **Bharatiya Nyaya Sanhita (BNS), 2023** classifies acts committed with the **intention of causing death** as **culpable homicide or murder** under **Sections 100 and 101**.
- Passive Euthanasia:** In ***Aruna Shanbaug v. Union of India (2011)***, the SC recognized that life-sustaining treatment could legally be withheld or withdrawn. It applies even to persons without decision-making capacity.
 - ❖ In ***Common Cause v. Union of India (2018)***, the SC recognized the **right to die with dignity** as a fundamental right under **Article 21** of the Constitution, and legalized the use of **advance medical directives** or “**living wills** (specifying conditions under which treatment may be withdrawn)”.

- Supreme Court Guidelines on Euthanasia:** The Supreme Court in 2023 modified the **2018 Euthanasia Guidelines** to ease the process of granting passive euthanasia.

- Living Wills / Advance Directives:** Adults of sound mind can create a **living will**. It must be signed by the executor in the presence of **two witnesses**. Signature can be attested by a **notary or gazetted officer**.

IN THE SUPREME COURT

2011: *Aruna Shanbaug v. Union of India* recognised that life-sustaining treatment could legally be withheld/ withdrawn even from persons without decision-making capacity.

of India, and legalised the use of advance medical directives or 'living wills'.

2018: *Common Cause v. Union of India* recognised the right to die with dignity as a fundamental right under Article 21 of the Constitution



2023: *Common Cause v. Union of India* simplified the process for making living wills and withholding/ withdrawing life-sustaining treatment by removing bureaucratic hurdles.

- Medical Board Approval:** Hospital forms **two medical boards**. Medical boards must communicate their decision within **48 hours**.
- High Court Oversight:** If hospital boards deny permission, the **patient's kin can approach the High Court**, which forms a fresh medical board to review the case.
- Global Perspective:** **Passive euthanasia is accepted in many countries**. Countries like the **Netherlands** and **Belgium** have **legalised active euthanasia** under strict safeguards.

Did you Know?

- Euthanasia and assisted suicide are not the same.** Euthanasia involves another person, usually a doctor, directly ending a patient's life. Assisted suicide involves providing the means or information for a person to end their own life.
- Suicide tourism, also called euthanasia tourism,** refers to patients traveling to countries where euthanasia or assisted suicide is legal.
 - Switzerland is the leading destination, attracting patients primarily from the UK, Germany, and France.

Ethical Perspectives of Euthanasia

- Autonomy (Self-Determination):** Patients should have the right to make informed choices about their life and death.
 - Supports **passive euthanasia**, allowing terminally ill patients to refuse life-prolonging treatment.
- Beneficence (Acting in Patient's Best Interest):** Medical actions should aim to relieve suffering.
 - Passive euthanasia** aligns with this principle by withdrawing futile treatment.
- Justice (Fairness and Equity):** Ensures equitable access to palliative care and legal safeguards.
 - Vulnerable patients must not be pressured into **active or passive euthanasia** due to financial or social constraints.

Need to Reform Passive Euthanasia in India

- **Bureaucratic Delays:** The **modified 2018 euthanasia guidelines** aim to **fast-track passive euthanasia**, but due to ineffective implementation, current procedures involving multi-tier approvals still cause delays for terminally ill patients, prolonging suffering and undermining the **constitutional promise of dignity in death**.
- **Practical Inaccessibility:** Families and doctors often **bypass legal procedures** due to their complexity, leaving decisions informal and exposing medical professionals to potential legal liability.
- **Low Awareness:** Many patients, families, and healthcare professionals are unaware of legal provisions such as living wills and advance directives, limiting the practical use of passive euthanasia.
- **Societal and Cultural Concerns:** In India, euthanasia is often viewed with moral **opposition due to the belief in the sanctity of life**, as well as religious and cultural perspectives that consider it akin to murder.
- **Fragmented Healthcare System:** Uneven hospital infrastructure, lack of trained personnel, and absence of hospital-level ethics committees prevent timely, fair, and humane implementation of passive euthanasia.

Suggestions

- **Digitisation of Advance Directives:** Create a **National Euthanasia Portal** linked with Aadhaar for registering, updating, or revoking living wills.
 - Allow doctors to **validate mental capacity online**, reducing paperwork and delays.
- **Hospital-Level Ethics Committees:** Establish committees including **senior physicians, palliative care specialists, and an independent member**.
 - Empower them to **authorize withdrawal of life support within 48 hours**, decentralizing decision-making.
- **Transparent Oversight:** Replace single-state ombudsman model with **digital dashboards or state-level health commissioners** to monitor cases.
 - Conduct periodic audits and public reporting to **build trust and prevent misuse**.
- **Mandatory Safeguards:** Include **7-day cooling-off period**, psychological counselling, and palliative care review before approving withdrawal of treatment.
 - Protect vulnerable populations (elderly, disabled, financially dependent) from coercion.
- **Capacity Building & Awareness:** Integrate **end-of-life ethics and legal training** into medical and nursing curricula.
 - Run **public awareness campaigns** to normalize living wills, advance care planning, and palliative care options.

- **Streamlined Procedures:** Simplify approvals while maintaining safeguards to **reduce bureaucratic delays** and ensure timely relief for terminally ill patients.

Alternative Dispute Resolution (ADR) in India

Law and Justice Minister emphasized the need for **global cooperation** to strengthen **Alternative Dispute Resolution (ADR) mechanisms**, referencing the **Panch Parmeshwar doctrine**, which advocates for **collective consensus** in dispute resolution.

ADR Mechanism

About: ADR refers to processes for resolving disputes **outside courts**, offering a **faster, cheaper, and cooperative** alternative where parties work together for the **best resolution**.

Constitutional and Legal Basis

- The **constitutional basis of ADR** in India is **Article 39A**, ensuring **equal justice and free legal aid**.
- ADR methods like **arbitration, conciliation, mediation, and Lok Adalat** are recognised under **Section 89 of the Code of Civil Procedure, 1908**.
- The **Arbitration and Conciliation Act, 1996** (amended 2021) allows **binding resolution** of civil and compoundable offences and establishes the **Indian Arbitration Council**, with a **180-day limit** for dispute resolution to ensure **faster justice**.



Models of ADR

- **Arbitration:** Neutral third party makes a **binding decision**, commonly in **commercial disputes**, offering a **formal yet flexible** alternative.
- **Mediation:** **Impartial mediator** helps parties reach a **non-binding, cooperative solution**, preserving relationships.

- **Conciliation:** Like mediation but with **more intervention**, suggesting solutions for **family, business, and employment disputes**.
- **Negotiation:**
 - **Informal, consensual** process where parties **directly agree**, giving **maximum control** over the outcome.
- **Lok Adalat:**
 - **People’s Courts** in India for **extrajudicial, amicable resolution** of **family, labor, and minor civil cases**.
 - **Lok Adalats**, governed by the **Legal Services Authorities Act, 1987**, were first held in **Gujarat in 1999**.
 - Their **decisions are final with no appeal**, as they resolve disputes **before formal litigation**, though their powers are not absolute.
- **Accessible and Inclusive Justice:** ADR provides a **cost-effective, inclusive, pre-litigation** mechanism, allowing parties to resolve disputes **on their terms and in a familiar language**.
- **Addressing State-wise Disparities:** The **India Justice Report 2025** shows **high pending cases and disparities in infrastructure and judges** in states like **Andhra Pradesh, Uttar Pradesh, and Bihar**, highlighting the need for **robust ADR systems**.
- **Enhancing Justice Delivery:** With **33% High Court and 21% district court vacancies**, **ADR mechanisms** are vital for **timely and effective access to justice**.
- **Global Alignment:** ADR is in alignment with **global standards**, such as the **United Nations Commission on International Trade Law (UNCITRAL) Model Law**, which ensures its compatibility with **international legal frameworks**.
 - **Foreign investors** often favor **ADR** due to its **neutrality, cost-effectiveness, and efficiency**, making it a key component in enhancing **India’s engagement with the global economy**.

Need for ADR

- **Reducing Judicial Backlog:** India has **4.57 crore pending cases**, many delayed over **10 years**, causing **injustice**. **Strengthening ADR** offers a **faster alternative** to traditional litigation.

Challenges (D-E-L-A-Y)	Measures (C-U-R-E-S)
■ D - Deficit of Infrastructure: Inadequate institutional support, underutilization of legal provisions, and a lack of robust court-annexed ADR centres hinder accessibility.	■ C - Create Infrastructure: Establishing a nationwide network of accredited ADR centres and leveraging the Mediation Act, 2023, for structural support.
■ E - Enforcement & Trust Deficit: Perceptions of bias, power imbalances, and procedural delays in enforcement undermine trust in ADR outcomes.	■ U - Upskill & Educate: Launching public awareness campaigns and integrating ADR into legal education to make it a preferred first resort.
■ L - Legal Culture & Mindset: A deep-seated litigation mindset and low awareness about ADR’s benefits among the public and legal professionals.	■ R - Regulate & Reinforce: Strengthening the regulatory framework for neutrals and ensuring time-bound enforcement of awards to build trust.
■ A - Absence of Quality Neutrals: A shortage of trained arbitrators and mediators, and a lack of uniform accreditation standards.	■ E - Elevate Standards: Empowering institutions to standardize training and enforce a strict code of conduct for ADR practitioners.
■ Y - Yielding to Procedural Complexity: Arbitration becoming as protracted as litigation (arbitration fatigue) and mediation being used for tactical delays.	■ S - Streamline Processes: Promoting fast-track mechanisms and imposing cost penalties for bad-faith participation to ensure genuine resolution.

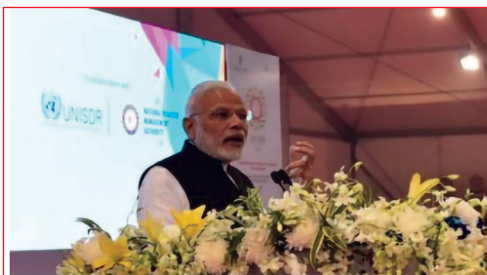
Strengthening India’s Disaster Resilience

- India is **enhancing disaster resilience** through science-based, nature-driven, and finance-linked strategies, guided by the **Prime Minister’s 10-Point Agenda on Disaster Risk Reduction (DRR) (2016)**.
- The **15th Finance Commission’s Rs 2.28-lakh-crore allocation (2021–26)** for DRR strengthens this shift from **reactive relief measures to proactive, anticipatory governance** in disaster management.

India’s Efforts in Enhancing DRR to Mitigate Hazards

- **Institutional Framework:** The Home Ministry and the **National Disaster Management Authority (NDMA)** guide states through multi-hazard planning, using frameworks such as the **National Guidelines for Landslides (2023)** and

- the **Urban Flood Management Framework (2024)** to standardize preparedness and response measures.
- **10-Point Agenda on DRR:** Prime Minister’s 10-Point Agenda integrates DRR into development, uses technology, and strengthens local capacities, covering community preparedness, tech-driven solutions, and global cooperation.
 - **Financial Innovation:** The **15th Finance Commission** allocated **Rs 2.28 lakh crore (2021–26)** across **preparedness (10%), mitigation (20%), response (40%), and reconstruction (30%)**, reducing reliance on multilateral loans.
 - **Reconstruction packages** worth **Rs 5,000 crore** have already been approved for states like **Uttarakhand, Himachal Pradesh, Assam, Sikkim, and Kerala**.



Prime Minister's Ten Point Agenda for Disaster Risk Reduction

Sl No.	Agenda Point
1	All development sectors must imbibe the principles of disaster risk management ▼
2	Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states ▼
3	Women's leadership and greater involvement should be central to disaster risk management ▼
4	Invest in risk mapping globally to improve global understanding of Nature and disaster risks ▼
5	Leverage technology to enhance the efficiency of disaster risk management efforts ▼
6	Develop a network of universities to work on disaster-related issues ▼
7	Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction ▼
8	Build on local capacity and initiative to enhance disaster risk reduction ▼
9	Make use of every opportunity to learn from disasters and, to achieve that, there must be studies on the lessons after every disaster ▼
10	Bring about greater cohesion in international response to disasters ▼

- **Nature-Based Solutions:** India focuses on sustainable, ecosystem-based interventions.
 - Initiatives include **bio-engineering for slope stabilization**, restoring **wetlands** to control floods, creating fuel-breaks to prevent **forest fires**, and enhancing urban green spaces.
- **Technological Measures:** NDMA integrates advanced technologies such as remote **sensing**, **site-specific automated weather stations**, and **glacial-lake monitoring** to improve risk prediction.
 - **Hazard mapping and early-warning systems** ensure timely alerts to vulnerable communities.
 - Mobile applications like **FloodWatch**, **Mausam**, **Meghdoot**, and **Damini (for lightning)** provide real-time, actionable alerts to citizens and farmers, enhancing community readiness.
 - Programs like the **National Cyclone Mitigation Programme (2011–22)** have built early-warning systems and 700 cyclone shelters across 8 states.
- **Capacity Building:** Geo-spatial training labs are being established, and the **National Institute of Disaster Management (NIDM)** has expanded courses covering 36 streams of disaster management.
 - Volunteer networks like **Apda Mitra** and **Yuva Apda Mitra** train 2.5 lakh citizens in disaster preparedness. At grassroots level, panchayats and schools run local DRR plans and safety drills
 - Together, these efforts enhance behavioural readiness and empower communities to respond effectively during emergencies.
- **International Coordination:** India engages globally through initiatives like the **Coalition for Disaster Resilient Infrastructure** and participates in DRR discussions in the **G-20**, **BIMSTEC**, and **Indian Ocean Rim Association**, sharing expertise and learning best practices for multi-hazard resilience.

Key Challenges in India's Disaster Resilience (F-R-A-G-I-L-E)

- **F- Fragile Ecosystems and Cascading Disasters:** Himalayan and northeastern regions face compound disasters, where **cloudbursts trigger landslides**, which in turn cause **flash floods**.
 - Unchecked infrastructure and climatic variability amplify risks as seen in the 2023 Himachal, Uttarakhand, and Sikkim GLOF events.
- **R - Reactive and Relief-Centric Governance:** Disaster policy still focuses on post-event relief instead of pre-emptive mitigation.
- **A- Administrative and Institutional Weaknesses:** Disaster management is over-centralised, leaving districts under-resourced and poorly trained.
 - Coordination gaps and slow fund flow **undermine local-level preparedness** and quick response

- **G - Governance Failures and Urban Mismanagement:** Unplanned urbanisation and weak regulation have crippled natural drainage, causing chronic flooding.
 - Over 80% of Indians now live in high-risk districts due to poor land-use enforcement.
- **I - Inadequate Technology and Early Warning Systems:** Only 25% of flood-risk districts have functional forecasting limiting last-mile reach.
- **L - Lax Enforcement of Building Codes:** Despite 59% of India being quake-prone, compliance with the National Building Code remains poor.
 - Informal construction and unsafe land use heighten structural vulnerability in cities and towns.
- **E - Expanding Socio-Economic Vulnerability:** Poverty and inequality push people into unsafe, marginal lands with minimal protection. Informal workers bear high climate losses.

Road Ahead for India's

Disaster Resilience (R-E-S-I-L-I-E-N-T)

- **R - Risk-informed Planning:** Integrate disaster risk in budgets, enforce floodplain zoning and restrict high-risk settlement development. Invest in **Nature-Based Solutions** like wetlands and mangroves.
- **E- Early Warning & Technology Upgrades:** Deploy **hyper-local Multi-Hazard Early Warning Systems**, use IoT micro-sensors for river, slope, soil monitoring and deliver geo-tagged alerts via **Common Alerting Protocol (CAP)** to mobiles.
- **S- Strengthening Infrastructure:** Enforce disaster-resilient construction codes and retrofit **pre-2005 critical infrastructure**. Integrate climate-risk in infrastructure planning
- **I- Inclusive Community Preparedness:** Empower **District Disaster Management Authorities** with legal autonomy, and expert staff. Mandate village/ward contingency plans in first response.
- **L - Local Capacity Building:** Decentralise resources and decision-making; improve local training and readiness.
- **I-Institutional Coordination:** Integrate private sector surge capacity beyond mere **Corporate Social Responsibility (CSR)** and conduct inter-agency drills; coordinated response.
- **E- Economic Readiness:** Expand disaster insurance and dedicated resilience funds and impose strict penalties for non-compliance to support disaster mitigation.
- **N - Nature-Based Solutions:** Restore mangroves, wetlands, forests; integrate into urban planning to buffer disasters.

- **T - Training:** Train 1 million women as '**Aapda Sakhi**' and establish trauma and critical care centers with trained healthcare staff to provide **Psychological First Aid**.

AI for Inclusive Societal Development

NITI Aayog released a study titled "**AI for Inclusive Societal Development**", a first-of-its-kind effort to systematically explore how **Artificial Intelligence (AI) and frontier technologies** can be harnessed to transform the lives and livelihoods of India's **informal workers**.

- The report proposes a **National Mission "Digital ShramSetu"**, envisioned as a technology-driven bridge to formalize and uplift the informal workforce.

Mission Digital ShramSetu

- **About: Mission Digital ShramSetu** is a transformative initiative proposed by NITI Aayog to digitize and empower India's informal workforce by leveraging cutting-edge technologies like **AI, blockchain, robotics, and immersive learning**.
- **Objectives:**
 - **Empowerment Through Technology:** Utilize technology to create **verifiable digital identities for workers**, enabling access to timely payments, skill certifications, and social security benefits.
 - **Inclusive Skilling:** Develop adaptive, multilingual, and offline-compatible training modules to upskill workers.
 - **Federated Credentialing System:** Establish a **decentralized trust model allowing training providers, employers, and government bodies** to issue and verify worker credentials in real-time.
 - **Smart Contracts for Fair Compensation:** Implement **blockchain-based smart contracts** to ensure **transparent and timely payments** to informal workers, reducing disputes and delays.
 - **Grassroots Innovation and Outreach:** Encourage state-level programs and partnerships with local institutions to promote digital literacy and facilitate the adoption of technology.
- **Governance and Structure:**
 - **Apex Governing Body:** Chaired by the **Prime Minister**, with key ministries involved in policy and budget decisions.
 - **Sectoral Task Forces:** Focused on sectors like **agriculture, healthcare, retail, and construction**, tasked with **solution design and implementation**.
 - **State Coordination Units:** To ensure **local adaptation** and effective **on-ground execution**.

■ **Targets:**

Proposed Macro Mission Targets: 2035 as a Strategic Midpoint to 2047			
Key indicators	2025 (Current Baseline)	2035 (Mid-Term Milestone)	2047 (Vision Target)
Per Capita Income	\$1800	\$5,500	\$14,500
Female Labour Force Participation	15%	25%	42%
Social Security Coverage	48%	80%	100%
Productivity	\$5/hour	\$15/hour	\$49/hour

Current State of Informal Workers in India

- **Informal Workforce Size:** Around **490 million people**, representing **about 85%** of India’s total labour force.
- **Economic Contribution:** The informal sector contributes roughly **45% of India’s Gross Domestic Product (GDP)**.
- **Productivity Levels:** Average productivity of informal workers is around **USD 5 per hour**, less than half the national average of **USD11 per hour**.
- **Per Capita Income:** The average informal worker earns about **USD 1,800 per year (2025)**.
- **Female Workforce Participation:** Women’s participation in the informal trade sector remains very low at **15% (excluding agriculture)**, compared with **37% national average** and **47% global average**.
- **Social Protection Coverage:** Only **48% of informal workers** currently have access to social security benefits.

Challenges Faced by the Informal Workforce

- **Financial Fragility and Volatility:**

- The lack of **formal contracts and trusted identities** causes delayed or **inconsistent wages, leading to financial instability**.
- Additionally, the absence of **verifiable income and complex loan procedures** prevents workers from accessing timely finance, while reliance on exploitative **informal lending sources** with high-interest rates further exacerbates their financial challenges.
- **Market Access and Demand Linkages:** Informal workers operate on the fringes of the market, with **no consistent demand** or digital presence, resulting in **chronic income instability and underemployment**.
 - Migrant workers face difficulties finding work across regions because they **don’t have portable digital identities or job-matching systems**, leading to exploitation by intermediaries.
- **Skilling and Adoption:** Many informal workers rely on **traditional, outdated methods and lack access to formal training**, which limits their growth and productivity.
 - **Formal and adaptive training programs are scarce**, and low digital literacy and inaccessible tools make it difficult for workers to adopt new technologies, further hindering their professional development.
- **Social Protection and Occupational Safety:** Workers struggle to benefit from social schemes due to a lack of awareness, digital barriers and non-portable records.
- **Productivity Gaps:** The lack of workflow optimization and access to digital tools results in wasted effort, low productivity, and no performance visibility, which directly impacts income potential.

Role of AI Technology in Transforming Informal Livelihoods	
Technology	Use
Affordable Smartphones with AI Features	Enables multimodal, multilingual interactions (voice, text, image) for informal workers to access digital platforms and services in their native language.
5G Connectivity	Provides high-speed internet access to over 740 million Indians by 2030, enabling scalable digital services in urban and rural areas.
Distributed Ledger Technology (DLT)	Ensures secure, transparent transactions and verified identities across platforms , enabling trust and transparency in the informal economy.
AI and Robotics for Task Automation	Automates tasks like fault detection, inspections, and repairs, enhancing productivity and safety, especially in hazardous work environments.
Augmented Reality (AR)	Provides immersive, hands-on training for informal workers like artisans, helping them improve skills through virtual workshops and real-time feedback.
Generative AI Knowledge Systems	Provides on-demand, task-specific knowledge to informal workers, offering real-time guidance tailored to their job needs (e.g., loom blueprints, dye recipes).
Smart Contracts for Payment Automation	Automates milestone-based payments through self-executing contracts, ensuring timely and transparent wage disbursements and reducing disputes.

Contd...

Role of AI Technology in Transforming Informal Livelihoods	
Technology	Use
AI-Powered Wearable Safety Gear	Monitors worker health and safety in real-time, detecting hazards and providing alerts to prevent accidents and ensure compliance with safety standards.
IoT and AI for Precision Farming	Uses Internet of Things (IoT) sensors and AI systems to monitor soil, climate, and irrigation, enabling more efficient, sustainable farming practices for informal agricultural workers.
Digital Wallets and Verifiable Credentials	Allows informal workers to store and share secure, tamper-proof digital credentials (e.g., work history, skills, certificates) for job and loan access.
Exoskeletons (Wearable Powered Devices)	Provides wearable exoskeletons that reduce physical strain and fatigue for workers by supporting their natural movements, enabling longer working hours and safer work in physically demanding jobs.

20 years of RTI Act, 2005

As **RTI Act, 2005** completes **20 years of implementation in October 2025**, a study has highlighted significant **gaps in its functioning**, exposing a **transparency system under severe strain**.

Key Facts About the RTI Act, 2005

- **About:** Enacted in **2005**, the **Right to Information (RTI) Act, 2005** seeks to **enable citizens** to freely **access information held by public authorities**.
 - It was designed to **promote openness in government operations, strengthen accountability, and advance the principles of good governance** across public institutions.
 - **Shahid Raza Burney's** RTI in Pune was the first one to be filed under the law.
- **Core Components:** The **Act** applies to all levels of **government**, including **central, state, and local bodies**.
 - **Section 8(2)** permits disclosure when **public interest outweighs confidentiality**, and **Section 22** ensures the **RTI Act, 2005** takes precedence over any **inconsistencies** with other laws.
- **Exemptions:** **Despite** anything contained in the **RTI Act, 2005** citizens are **not entitled to information** that could **harm India's sovereignty, integrity, security, strategic, scientific, or economic interests, affect relations with other countries, or incite an offence**.
- **Right to Information (Amendment) Act, 2019:** Originally under the **RTI Act, 2005**, the **Chief Information Commissioner** and **Information Commissioners** served for **5 years** or until **age 65**, whichever is earlier and their **salary** and **terms of service** matched those of the **Chief Election Commissioner** and **Election Commissioners**.
 - However, the **2019 amendment** changed this, giving the **Central Government** the power to set their **term of office, salaries, allowances, and terms of service**.
- **Achievement of RTI Act, 2005:** It has enhanced **accountability in public fund use**, enabling citizens to

access **MGNREGA expenditures, PDS records, and local development projects**, reducing **leakages and misuse**.

- It has exposed **high-profile scams** like the **Adarsh Society, 2G spectrum, and Commonwealth Games**, while instilling a **culture of accountability** among public officials aware their actions are subject to public scrutiny.

Key Challenges Facing the RTI Act, 2005

- **Considerable Delays:** In most **Information Commissions (ICs)**, the **waiting time** to resolve a matter exceeds **one year**. In some states, the delays are extreme, with **Telangana** estimated at **29 years and 2 months** and **Tripura** at **23 years**.
- **Vacant Positions:** Between **2023 and 2024**, six **Information Commissions** were **completely defunct for varying periods** due to the **non-appointment of new commissioners**.
 - Currently, the **Jharkhand** and **Himachal Pradesh** commissions are **defunct**, while the **Central Information Commission (CIC)**, **Chhattisgarh**, and **Andhra Pradesh** commissions function **without a Chief Information Commissioner**.
- **Erosion via Legislative Changes:** The **RTI Amendment Act, 2019** reduced **Information Commissioners' autonomy** by giving the **Central Government** power to set their **tenure and salaries**. The **Digital Personal Data Protection (DPDP) Act, 2023** amended **Section 8(1)**, exempting **all personal information** from disclosure, including that of **public officials**.
- **Expansion of Exemptions:** Government departments frequently **deny information under the RTI**, invoking **national security** provisions of the **Official Secrets Act, 1923**. For example, agencies like **RAW, IB, and CERT-In** are **exempt under the Second Schedule** of the **RTI Act, 2005**.
- **Threats to RTI Activists:** **RTI activists** face **harassment and violence**, deterring citizens from exposing corruption. Many have been **attacked or killed**, while protections under the **Whistleblower Protection Act, 2014** remain **weakly implemented**.

Reforms Needed to Ensure Transparency in RTI Framework

- **Strengthening Information Commissions:** Ensure **timely appointments** of IC through a **transparent, time-bound process** and provide commissions with **adequate staff, technology, and infrastructure**.
 - Establish **performance benchmarks** per commissioner to efficiently **reduce case backlogs**.
- **Integrating Technology:** **AI chatbots** and **automated assistants** can help citizens draft RTI applications, while **blockchain** ensures data authenticity. Integrating **RTI portals with DigiLocker** and **real-time tracking** can improve access and monitoring of requests.
- **Strict Adherence to the Law:** Enforce **mandatory proactive disclosure** under **Section 4** of the RTI Act, 2005 and impose **penalties on Public Information Officers (PIOs)** for wrongful denials or delays to strengthen RTI enforcement. Ensure **Information Commissions submit timely Annual Reports** under **Section 25** RTI Act, 2005 to maintain transparency and accountability.
- **Protection of RTI Activists:** Fully implement the **Whistleblower Protection Act, 2014** with **anonymous complaints** and **emergency safeguards**, and **fast-track courts** should handle cases of attacks on RTI activists.
 - Establish **district-level helplines, support cells, and legal aid funds** through government-civil society partnerships to protect activists.
- **Partial Reinstatement of Autonomy:** The **appointment process** should include **parliamentary oversight** instead of being left to **executive discretion**, and **periodic reviews by the Supreme Court and High Courts** can strengthen independence.

Empowering Farmers through Skill Development

With **two-thirds of India's population dependent on agriculture**, **empowering farmers through skill development** has become a **priority**. The government is prioritizing **skill development** to boost **farmers' productivity** and ensure **sustainable growth**.

Key Initiatives Focusing on Agricultural Skill Development

- **Institutional Platforms for Farmer Training:** **Krishi Vigyan Kendras (KVKs):** ICAR-established district-level KVKs providing **hands-on training**; trained **58.02 lakh farmers (2021–2024)** and **18.56 lakh till February 2025**.
 - **Agricultural Technology Management Agency (ATMA):** ATMA promotes **decentralised extension reforms**; trained **1.27 crore farmers (2021–2025)** through **state-led training, demonstrations, and exposure visits**.

- **Skilling Rural Youth and Promoting Mechanisation:**
 - **Skill Training of Rural Youth (STRY):** Provides **short-term vocational training** in allied sectors; **43,000 youth trained (2021–2024)**, building **skilled rural manpower**.
 - **Sub-Mission on Agricultural Mechanisation (SMAM):** SMAM promotes **farm mechanisation** and **custom hiring services**; trained **57,139 farmers (2021–2025)**.
- **Strengthening Knowledge on Soil, Resources, and Value Chains:**
 - **Soil Health Card Scheme:** Distributed **25.17 crore cards (as of July 2025)**; conducted **93,000+ training** and **6.8 lakh demonstrations**, promoting **balanced nutrient management**.
 - **Farmer Producer Organizations (FPOs):** Over **10,000 registered**, offering **training on agri-business, market linkages**, and use of **digital platforms** like **e-NAM** and **GeM**.

Agriculture Related Findings (Economic Survey 2024-25)

- **Agricultural Growth:** Agriculture sector grew at **5% annually (2016-23)**, with **GVA share** rising from **24.38% (2014-15)** to **30.23% (2022-23)**. **Agricultural income** has grown at **5.23% annually** over the past decade.
- **Sectoral Performance:** The **fisheries sector** had the highest growth rate (**13.67%**), followed by **livestock (12.99%)** between 2013-14 and 2022-23, while **oilseeds** grew slowly at **1.9%**.
- **Irrigation Coverage:** It increased from **49.3% (2015-16)** to **55% (2020-21)** of **Gross Cropped Area (GCA)**, while irrigation intensity rose from **144.2% to 154.5%**.
 - **Punjab (98%), Haryana (94%), Uttar Pradesh (84%), and Telangana (86%)** have high irrigation coverage, while **Jharkhand and Assam** have below 20%.
 - ❖ GCA is the total land cultivated in an agricultural year, including multiple cropping cycles on the same land.

- **Sector-Specific Skilling Initiatives:**
 - **Pradhan Mantri Kaushal Vikas Yojana (PMKVY 4.0)** enhances farmers' employability through large-scale agricultural skill training and certification.
 - ❖ It integrates **agriculture skills**, training **1.64 crore** and certifying **1.29 crore individuals** since 2015.
 - **Mission for Integrated Development of Horticulture (MIDH)** promotes scientific horticulture practices for improved productivity and income.
 - ❖ The mission trained **9.73 lakh farmers (2014–2024)** in **horticulture practices**.
 - **Rashtriya Gokul Mission (RGM)** focuses on improving livestock quality through training in breeding and artificial insemination.
 - ❖ It trained **38,736 technicians** in **artificial insemination and livestock breeding**.

- **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)** strengthens the agro-processing sector to reduce wastage and increase farmers’ income.
 - ❖ The scheme approved **1,601 agro-processing projects**, benefiting **34 lakh farmers**.

Strengthening Labour Rights in India

The **Sigachi Industries reactor blast in Telangana**, along with a spate of industrial accidents in 2025, has **reignited concerns over industrial safety standards** and the **weakening of labour protections**, reviving debates on the erosion of workers’ rights in India.

Key Labour Laws Governing Workers’ Rights in India
■ Factories Act, 1948: Governs working conditions, machinery maintenance, safety standards, working hours, rest breaks, canteens, and crèches. ● Includes provisions for inspections and enforcement to ensure compliance. ● It was amended in 1976 and 1987, the latter after the Bhopal Gas Tragedy, to strengthen safety norms. ■ Workmen’s Compensation Act, 1923: Provides compensation to workers injured or killed on the job. ■ Employees’ State Insurance (ESI) Act, 1948: Offers health insurance, medical care, and cash benefits to employees in case of sickness, maternity, or employment-related injury. ■ Payment of Wages Act, 1936 and Minimum Wages Act, 1948: Ensure timely and fair payment. ■ Industrial Disputes Act, 1947: Protects workers’ rights regarding termination, layoffs, and dispute resolution. ■ Occupational Safety, Health and Working Conditions (OSHCW) Code, 2020: Consolidates 13 previous labour laws into a single framework. OSHCW Code seeks to regulate safety, health, and working conditions across sectors, though full implementation is pending.

Reasons for Rising Industrial Accidents in India

- **Negligence and Cost-Cutting:** Employers often **ignore maintenance**, use outdated machinery, and skip safety checks leading to frequent industrial accidents.
 - The **International Labour Organization (ILO)** states that industrial accidents are rarely random and they usually result from employers cutting corners, underinvesting in safety, or forcing workers into long hours and high pressure due to low wages.
- **Lack of Training and Safety Systems:** Workers are **poorly trained**, and many sites **lack alarms, safety gear, or emergency facilities** leading to mishandling of equipment and delayed response during crises.
 - At **Sigachi Industries**, the reactor reportedly ran at **twice the permissible temperature** without any **alarm or intervention**, underscoring serious safety lapses.

- **Overwork and Fatigue:** Long hours and **high work pressure** increase mistakes in hazardous environments.
- **Weak Law Enforcement:** Irregular inspections and poor enforcement allow unsafe practices to continue.
- **Unregistered Workers:** Informal workers lack records, legal protection, and access to compensation, increasing vulnerability.
- **Deliberate Actions to Claim Insurance:** Some accidents are manipulated or exaggerated to secure insurance payouts, contributing to underreporting of actual workplace safety practices.

Challenges in Protecting Workers’ Rights in India

- **Systemic Erosion of Legal Safeguards:** Labour protections have been diluted under the guise of flexibility and **ease of doing business**, weakening enforcement mechanisms.
 - For example, **Maharashtra’s 2015 self-certification rule** allowed factories to bypass independent inspections, undermining statutory safety provisions.
- **Normalization of Informality and Vulnerability:** Policy shifts **favoring employer discretion to hire, fire, and extract work** without oversight have entrenched informal employment, leaving workers unregistered and without legal or social protection.
 - Most contract workers in **Sivakasi fireworks factories** operate without formal records, making accident compensation irregular and delayed.
- **Gendered Exclusion from Economic Gains:** Weak enforcement of workplace rights disproportionately **affects women**, constraining participation and **perpetuating gender exclusion**
- **Corporate Accountability Deficit:** Reduced inspections and self-certification limit avenues to **hold employers criminally or financially responsible for negligence**.
 - For instance, industrial disasters like the Ennore coal-handling collapse saw minimal legal consequences for structural failures despite evident lapses.
- **Long-Term Economic and Productivity Impact:** Unsafe and exploitative work conditions lower productivity, with informal trade workers earning **USD 5/hour**, nearly half the national average of **USD 11/hour**, undermining India’s **Viksit Bharat 2047** goals.

Suggestions to Strengthen Worker Rights and Improve Safety

- **Reinforce Legal Safeguards:** Fully implement the OSHWC Code, 2020, and align labour policies with **ILO conventions on workplace safety, decent work, and social protection**.
- **Formalisation and Social Security:** Digitally register informal workers through the **Shram Suvidha Portal** and

integrate them into **universal social security coverage**, including pensions, health insurance, and paid leave.

- Expand the **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)** pension scheme to cover all informal trade workers.
- **Skill Development and Safety Training:** Implement sector-specific safety and skilling programs via **National Skill Development Corporation (NSDC)** and **Skill India Mission**.
 - Accelerate the implementation of **Mission Digital ShramSetu** as proposed by NITI Aayog.
 - Leverage **AI-enabled monitoring and predictive tools** under **#AIforAll** to track compliance and hazards in high-risk industries.
- **Gender-Inclusive Measures** Promote female workforce participation through **workplace childcare facilities**, maternity benefits under the **Maternity Benefit Act, 1961**, and vocational training programs targeted at women in informal sectors.
- **Corporate Social Responsibility (CSR) Compliance:** Encourage adherence to **Environmental, Social, and Governance (ESG)** criteria among businesses.
 - Integrate **worker welfare considerations** into corporate CSR strategies.
- **Promote Collective Action and Safety Culture:** Encourage collective bargaining, worker representation, and whistleblower protection.
 - Foster a **"safety-first" industrial culture**, treating worker protection as an investment rather than a cost.
- **Data-Driven Monitoring:** Establish **national dashboards** to track compliance, accident rates, and social protection coverage, enabling targeted policy interventions and preventing negligence.

Shaping India's Future through Biomedical Research Programme

The Union Cabinet has approved **Phase-III of the Biomedical Research Career Programme (BRCP)**, shaping India's next frontiers in science through biomedical research and strengthening the nation's innovation capacity in line with **Viksit Bharat 2047**.

India's pharma industry is considered to be the **world's 3rd largest by volume** and **14th in terms of value of production**.

Biomedical Research Career Programme (BRCP)

- **About:** The BRCP is a flagship **Indo-UK initiative** launched in **2008–09**, the programme is **jointly implemented by the Department of Biotechnology (DBT), Government of India, and the Wellcome Trust, UK**.
 - BRCP aligns with national missions such as **Atmanirbhar Bharat, Swasth Bharat, and Startup India**.

- Phase II of the BRCP was launched in **2018–19** with an expanded portfolio and broader research areas.
- Phase III will be implemented from **2025–26 to 2030–31**, with an extended service phase up to **2037–38**.

■ Main Objectives

- Build a **world-class biomedical research ecosystem** in India.
- Support **scientists at all career stages** from early-career to senior researchers through **fellowships and grants**.
- Encourage **interdisciplinary, ethical, and translational research** that directly improves healthcare and public health outcomes.
- **Phase-III targets training 2,000 researchers, advancing 25–30% projects to Technology Readiness Level (TRL-4) and above**, promoting patentable research, and increasing women scientist participation by 10–15% for greater inclusivity.

- **Achievements:** The BRCP has supported **721 research grants** and played a **key role in shaping India's COVID-19 research response**.

India's Emerging Frontiers in Biomedical Research and Innovation

- **Genomics & Human Genetics:** Initiatives like **GenomeIndia** and **UMMID (Unique Methods of Management and Treatment of Inherited Disorders)** map India's genetic diversity to enable **precision medicine** and early diagnosis of rare diseases.
 - **dbGENVOC**, developed by **DBT-National Institute of Biomedical Genomics (NIBMG)**, is the world's first public **oral cancer genomic database**, hosting over **24 million variants** to support **prevention, diagnosis, and treatment** in India.
- **Infectious Disease Biology:** India's research on **Human immunodeficiency virus (HIV), Tuberculosis (TB), malaria, Covid-19, and dengue**, led to innovations like the **Dengue Day 1 test** and **HIV Tri-Dot+Ag test**.
- **Vaccine Development:** Supported by the **Indo-US Vaccine Action Programme (VAP)**, India has developed key indigenous vaccines such as **ROTAVAC** and **Covaxin**.
 - Current efforts target diseases like dengue, malaria, and pneumonia, enhancing **self-reliance** and export potential.
- **Diagnostics & Medical Devices:** Tools like **Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) based tests**, indigenous **Reverse transcription polymerase chain reaction (RT-PCR) kits**, and affordable devices improve **early detection and healthcare access**.
- **Therapeutics & Drug Repurposing:** India is accelerating **affordable drug development** by repurposing existing

- drugs for new indications. This approach **shortens clinical trial timelines and regulatory approvals**, making therapies more accessible for India's large population.
- **Biomedical Engineering & Biodesign:** Under **Production Linked Incentive scheme for promoting domestic manufacturing of Medical Devices (PLI MD)**, India develops **low-cost implants, assistive devices, and medical instruments**, reducing dependence on imports.
 - **Maternal & Child Health:** Programs like **GARBH-ini** study **pre-term births and developmental risks** to improve **maternal and child care**.
 - National Antimicrobial resistance (AMR) supports R&D for affordable, evidence-based solutions to address **AMR, lifestyle diseases, and malnutrition**.
 - Initiatives like **BioCARE** (career development of unemployed female scientists), **Janaki Ammal Award** (recognizes outstanding contributions to the field of taxonomy), and women-focused incubators promote **gender inclusivity and leadership**.

Measures to Ensure Long-Term Sustainability of Biomedical Research in India

- **Policy and Regulatory Reforms:** Establish a **National Biomedical Research Authority (NBRA)** to streamline ethical clearances and data governance.
 - Integrate **open science frameworks** for transparency and collaboration.
- **Financial and Institutional Sustainability:** Create a **National Biomedical Innovation Fund (NBIF)** for continued support post-2037. Strengthen **public-private partnerships (PPP)** for translational research and manufacturing.
- **Regional Research Clusters:** Develop **BioInnovation Hubs** in Tier-2/3 cities to decentralize R&D capacity and promote local employment.
- **Skill Development and Education:** Introduce **biomedical innovation fellowships** and interdisciplinary curricula in medical and engineering institutions.
- **Monitoring and Impact Assessment:** Use **AI-driven dashboards** to track fellowship outcomes, technology readiness, and gender parity metrics.

Natural Farming in India

Himachal Pradesh is witnessing a major shift as thousands of farmers **move away from chemical-based agriculture toward natural farming**. This transition reflects India's wider push for **sustainable and eco-friendly agriculture**.

Impact of Natural Farming on Farmers and Rural Livelihoods

- **Reduced Cost of Cultivation:** Natural farming is not just an ecological alternative but also offers **tangible socio-**

economic benefits to Indian farmers. The **Zero budget natural farming (ZBNF)** is the most popular model in India.

- The cost of inputs under natural farming is **50–60% lower than conventional chemical farming**.
- Farmers **significantly save on input costs** since bio-inputs are prepared on-farm using locally available resources.
- **Improved Farmer Incomes:** Though initial yields may be stable or slightly reduced, **long-term productivity is sustained or increased** due to improved soil health.
 - Income stability is achieved through **intercropping, value-added products, and reduced crop failure risk**.
- **Employment Generation:** Encourages **local entrepreneurship** in bio-input production, seed banks, composting, and local market chains. Promotes **rural youth participation** by making agriculture more knowledge-based and sustainable.
- **Health and Food Security:** Natural produce is free from harmful pesticide residues, ensuring better nutrition and food safety.
 - Enhances **nutritional density** of food, addressing concerns of hidden hunger and health disorders due to chemicals.
- **Women Empowerment:** Involves women in preparation of bio-inputs, composting, kitchen gardening, and farmer producer groups.

India's Initiatives for Natural Farming

- **National Mission on Natural Farming (NMNF):** A centrally sponsored scheme by the **Ministry of Agriculture & Farmers Welfare**, promoting **chemical-free, ecosystem-based natural farming rooted in traditional knowledge**.
 - The **NMNF** targets **7.5 lakh hectares** across **15,000 clusters** and aims to facilitate **1 crore farmers**.
 - An incentive of **Rs 4,000 per acre per year** for two years is being provided to encourage adoption of natural farming practices.
 - NMNF builds on the earlier **Bhartiya Prakritik Krishi Paddhati (BPKP)** under the **Paramparagat Krishi Vikas Yojana (PKVY)**.
- **Bhartiya Prakritik Krishi Paddhati (BPKP):** As of March 2025 it supports **28 lakh farmers** practicing natural farming on **9.4 lakh hectares**.

Challenges in Mainstreaming Natural Farming Across India

- **Knowledge and Skill Gaps:** Natural farming is knowledge-intensive and site-specific, requiring farmers to understand ecological interactions and adopt new practices.
 - Many farmers, especially in remote areas, **lack practical understanding** and require continuous handholding by **Krishi Sakhis**.

Components of Natural Farming

- **Beejamrit:** The process includes treatment of seed using cow dung, urine, and lime-based formulations.
- **Whapasa:** The process involves activating earthworms in the soil in order to create water vapor condensation.
- **Plant Protection:** The process involves spraying of biological concentrates which prevent pest, disease, and weed problems and protect the plant and improve their soil fertility.
- **Jivamrit:** The process enhances the fertility of soil using cow urine, dung, flour of pulses and jaggery concoction.
- **Mulching:** The process involves creating micro-climate using biomass to conserve soil moisture.

- **Behavioural Resistance:** Farmers accustomed to **high-input, chemical-intensive practices** often hesitate to shift to **low-input, labour-intensive natural farming**.
- **State-Level Variability:** Successful models exist in **Himachal Pradesh, Andhra Pradesh, Gujarat, etc.**, but **soil, climate, and social conditions vary**, making **uniform replication** challenging.
- **Policy Convergence Complexity:** Coordinating NMNF with **other central/state schemes (livestock, rural development, AYUSH, food processing)** and local institutions is **administratively challenging**.
- **Market Linkages and Premium Pricing:** Establishing **reliable markets for chemical-free produce** remains a challenge.
 - Farmers may hesitate to switch if **premium pricing and assured minimum support price (MSP)** are not consistently available.
- **Input Availability and Infrastructure:** Ensuring **timely availability of bio-inputs** across all regions, especially remote areas, requires robust **Bio-input Resource Centres (BRCs)** and supply chains.

Suggestions

- **Decentralized Farmer Clusters:** Form **contiguous natural farming clusters** to enable peer learning, reduce input costs, and facilitate community-level extension support.
- **Strengthen Knowledge Networks:** Deploy **Krishi Sakhis, Community Resource Persons, and KVKs** to provide hands-on training in NF techniques, bio-input preparation, pest management, and multi-cropping.
- **Bio-input Accessibility:** Establish **local Bio-input Resource Centres (BRCs)** and promote on-farm production of organic inputs to reduce dependency on external chemical inputs.
- **Market Integration and Certification:** Develop **PGS/organic certification**, promote a **national brand for NF produce**, and strengthen linkages with **Agricultural Produce Market Committees (APMCs), Farmer Producer Organizations (FPOs), and local markets** to ensure fair pricing.

- **Agro-ecology Based Research:** Tailor **region-specific NF cropping systems** and soil-moisture management practices to enhance resilience in varied agro-climatic zones.
- **Digital Monitoring and Knowledge Sharing:** Use **geo-tagged tracking, online portals, and mobile advisory services** to monitor adoption, yields, and ecological outcomes while providing timely guidance.

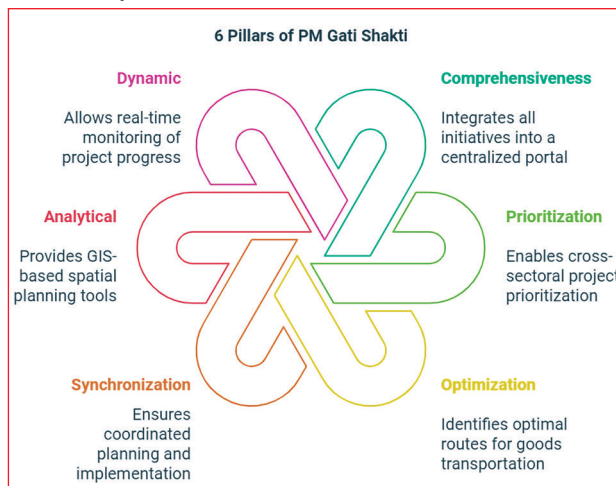
PM Gati Shakti National Master Plan

On the occasion of celebrating 4 years of the **PM Gati Shakti National Master Plan (NMP)**, the government has opened its **PM Gati Shakti portal** to the **private sector**, aiming to enhance last-mile delivery services and infrastructure development.

- **PM Gati Shakti portal** is developed by **Bhaskaracharya National Institute for Space Applications and Geoinformatics (BISAG-N)**.

PM Gati Shakti National Master Plan

- **About:**
 - Launched in **October 2021**, it is a **Rs 100 lakh crore investment** initiative for infrastructure development over the next **five years**.
 - It promotes **integrated development** across **seven economic drivers**—railways, roads, ports, waterways, airports, mass transport, and logistics—supported by **energy, IT, water, and social infrastructure**.
- **Objective:**
 - It aims to **cut logistics costs** through integrated infrastructure planning.
 - Acting as a **digital backbone**, it **bridges macro-level planning and micro-level implementation**, links **existing schemes (Bharatmala, Sagarmala, UDAN)**, and connects **economic zones** to boost **business competitiveness**.



Key Features:

- **Geospatial Data Platform:** It integrates **200+ layers** of **geospatial data** onto a **centralized portal**, enabling users to **visualize multi-layered data** for a **holistic view** of existing and planned assets.
- **Economic Hubs:** Targets **textile clusters, pharmaceutical hubs, defence corridors, and agricultural zones** to boost productivity.
- **Tech-Driven Planning:** Uses **advanced spatial tools** and **ISRO satellite imagery** by **BISAG-N** for **data-driven project management**.

Targets:

- **Aviation Infrastructure:** Plan includes **200 new airports, heliports, and water aerodromes** to support aviation.
- **Renewable Energy:** Increase **renewable capacity to 225 GW by FY25** and complete **17,000 km of gas pipelines**.
- **Power Grid Expansion:** Extend the **power grid** with **454,200 circuit km of lines**.

- **National Highway Network:** Aim to expand to **200,000 km of national highways**.
- **Rail Cargo Capacity:** Target to grow **rail cargo capacity to 1,600 tons by FY25**.

Key Achievements:

- **Unified Government Platform:** Integrates **44 Central Ministries** and **36 States/UTs** on a **single platform** with over **1,600 data layers** for **cohesive planning**.
- **Project Evaluation:** The **Network Planning Group (NPG)** has evaluated over **200 big-ticket projects** based on **PM GatiShakti's principles** of **multimodal integration** and **last-mile connectivity**.
- **Social Sector Development:** The **platform** is being extended to plan **social infrastructure**—identifying **gaps** and enabling better **placement of schools, hospitals, and anganwadis**, especially in **remote areas**.
- **Boosting Trade & Logistics:** Aligned with the **National Logistics Policy, 2022**, it has helped improve **India's rank** on the **World Bank Logistics Performance Index** to **38th in 2023**, a significant rise from **44th in 2018**.

Challenges (B-L-O-C-K)	Way Forward (S-C-A-L-E)
■ B - Bureaucratic Silos: Deep-rooted silos and bureaucratic resistance hinder the seamless data sharing and inter-ministerial coordination that GatiShakti requires.	■ S - Standardize Data Systems: Enforce standardized data protocols , establish clear data ownership and accountability, and mandate regular audits for accuracy and timely updates.
■ L - Land & Legal Hurdles: Despite integrated planning, land acquisition and obtaining numerous statutory clearances remain a major source of project delays.	■ C - Create Collaborative Incentives: Create performance metrics that reward inter-departmental collaboration and successful integrated project outcomes.
■ O - Operational Data Gaps: Different ministries/states may have varying data standards, formats, and update frequencies , leading to unreliable insights.	■ A - Advance Technical Training: Launch nationwide training programs for officials at all levels. Develop simplified user interfaces and provide dedicated technical support cells to ensure effective platform utilization.
■ C - Capacity & Skill Shortage: Many state and local agencies lack the technical infrastructure and skilled personnel to effectively use the advanced GIS and analytics platform.	■ L - Link Approval Processes: Use GatiShakti to identify land-related issues at the planning stage . Integrate with other government portals (e.g., PARIVESH) for faster, parallel processing of clearances.
■ K - Kinetic Action Delay: Ensuring that the real-time data from the platform leads to timely interventions and corrective actions on stalled projects is a challenge.	■ E - Enforce Monitoring Mechanisms: Strengthen the Network Planning Group (NPG) mandate to include monitoring and troubleshooting. Implement an escalation matrix for unresolved bottlenecks.

Minimum Support Prices:
From Safety Net to Self-Sufficiency

The Government of India has approved the **Minimum Support Prices (MSP)** for **Rabi Marketing Season (RMS) 2026–27**, with an estimated procurement of **297 Lakh Metric Tonnes (LMT)**. This marks a shift in MSP policy from mere price support to promoting **self-sufficiency**, particularly in pulses and oilseeds.

Evolution of MSP to Support India's Agricultural Growth

- **MSP as a Safety Net:** The MSP serves as a crucial safety net for farmers, ensuring that they receive a fair return for

their produce, especially when market prices fluctuate or fall below production costs.

- By guaranteeing a minimum price, the MSP protects farmers from **distress sales**, preventing them from incurring losses in times of market instability.
- **Promoting Crop Diversification:** The policy increasingly encourages **nutri-cereals** and **oilseeds**, aligning agriculture with national priorities like **food security (through PDS)** and **climate resilience**.
- Higher MSPs for crops like **ragi, nigerseed, and mustard** aim to promote climate-resilient farming, reducing the over-dependence on water-intensive crops like paddy.

MSP

- **Definition:** MSP is the price at which the **government procures crops directly from farmers**, offering them assured income and protection from market volatility.
- **Determination:** MSPs are recommended by the **Commission for Agricultural Costs and Prices (CACP)** — an attached office under the **Ministry of Agriculture and Farmers Welfare**, established in **1965**.
 - The **Cabinet Committee on Economic Affairs (CCEA)**, chaired by the **Prime Minister**, gives the final approval.
- **Criteria Considered:** Cost of production, demand-supply dynamics, market price trends, inter-crop price parity, and terms of trade between agriculture and non-agriculture sectors.
 - Since **2018–19**, MSPs have been fixed at **1.5 times the cost of production**, ensuring a **minimum 50% profit margin** for farmers.
- **Crops Covered:** MSP is declared for **22 mandated crops** — including **14 Kharif crops**, **6 Rabi crops**, and **2 commercial crops** — plus a **Fair and Remunerative Price (FRP)** for sugarcane.
- **Procurement Framework**
 - **Cereals and coarse cereals:** Procured by **Food Corporation of India (FCI)** and state agencies.
 - **Pulses, oilseeds, copra:** Procured under **Price Support Scheme (PSS)** of **PM-AASHA** through **NAFED** and **NCCF**.
 - **Cotton & Jute:** Procured at MSP via **Cotton Corporation of India (CCI)** and **Jute Corporation of India (JCI)**.
 - **No maximum procurement limit** for jute and cotton

- **Increasing Farmers' Beneficiaries:**
 - The number of farmers benefiting from MSP payments has grown to **1.84 crore** as of the **2024–25** period, showcasing the **scalability** of the MSP scheme and its wider reach in rural India.
 - The **Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)** scheme, which guarantees the procurement of **pulses, oilseeds, and copra**, has seen an increase in financial backing, from **₹45,000 crore** to **₹60,000 crore**, further supporting farmers' incomes.
- **Expanding MSP Procurement:** Between **2014-15** and **2024-25**, the volume of food grains procured under MSP increased significantly from **761 lakh metric tonnes** to **1,175 lakh metric tonnes**.
 - India aims for **self-sufficiency in pulses** by **2027**, with the government committed to **procure 100%** of major pulse production until **2028-29**.
- **Digital Transparency:** Platforms like **e-Samridhi**, **e-Samyukti**, and the **Kapas Kisan App** enable online registration, quality assessment, and direct payments, reducing delays and middlemen.

Challenges (C-O-S-T-I)

- **C: Costly Procurement** – High procurement, storage, and subsidy costs burden the government.
- **O: Over-reliance on Wheat & Rice** – Monocropping leads to groundwater depletion and soil degradation.
- **S: Skewed Benefits** – MSP benefits are concentrated in a few states and crops, excluding many farmers.
- **T: Transparency Issues** – Lack of awareness and weak infrastructure prevent farmers from accessing MSP benefits.
- **I: Inefficient Implementation** – Only **6%** of farmers benefit from MSP (Shanta Kumar Committee, 2015).

Way Forward (G-R-O-W-T-H)

- **G: Greater Coverage** – Expand MSP to include more crops like pulses, oilseeds, and millets.
- **R: Reform Procurement Systems** – Strengthen infrastructure and public-private partnerships for efficiency.
- **O: Outreach & Awareness** – Use digital platforms for farmer registration and direct cash transfers.
- **W: Wider Crop Diversification** – Align MSP with sustainable cropping systems to reduce monocropping impacts.
- **T: Timely Enforcement** – Ensure strict monitoring and enforcement of MSP guidelines.
- **H: Holistic Approach** – Integrate MSP with income support and market reforms for long-term farmer welfare.

Special Campaign 5.0-Towards Efficient Governance in India

Special Campaign 5.0 is making headlines as its **implementation phase (October 2–31, 2025)** is underway across Indian government offices. Ministries have reported significant progress in clearing public grievances.

Special Campaign 5.0

- The **Special Campaign 5.0 (officially, the Special Campaign for Disposal of Pending Matters 5.0 or SCDPM 5.0)** is an initiative of the Government of India led by the **Department of Administrative Reforms and Public Grievances (DARPG)**.

- Building on the success of earlier editions, Campaign 5.0 focuses on “Minimizing Pendency and Institutionalizing Swachhata.”
- **Primary Objectives:** Reduce pendency by expediting disposal of public grievances, appeals, and inter-ministerial references.
 - Review and close old physical and e-files to promote digital efficiency. Conduct cleanliness drives in workplaces and public-facing offices.
 - Ensure scientific e-waste and scrap disposal under the E-Waste Management Rules, 2022.

Ayushman Bharat and Universal Health Coverage

The **National Health Authority’s (NHA) Annual Report 2024–25** has revealed that under the **Ayushman Bharat–Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)** while **government hospitals** make up the **majority of empanelled institutions**, most beneficiaries are actually availing **treatment in private hospitals**, often at **higher costs**.

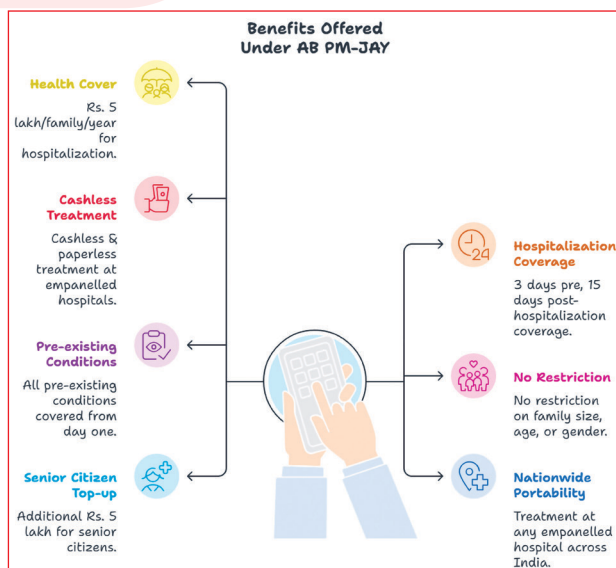
Key Findings Regarding the AB-PMJAY

- **Dominance of Private Hospitals:** Of the **31,005 hospitals** empanelled under **AB-PMJAY**, only **45%** are **private**, yet they account for **52%** of the **9.19 crore hospitalisations** and receive **66%** of the total **₹1.29 lakh crore** treatment cost.
- **Treatment Trends:** Since 2018, **14%** of treatments under **AB-PMJAY** have been for **haemodialysis**, followed by **fever (4%)**, **gastroenteritis (3%)**, and **animal bites (3%)**. In 2024-25, the top specialties were **General Medicine**, **Ophthalmology**, and **General Surgery**.
- **Patient Mobility:** A key feature of **Ayushman Bharat** is **portability**, enabling treatment across states.
 - Top in-migration destinations are **Chandigarh (19%)**, **Uttar Pradesh (13%)**, and **Gujarat (11%)**, while states with highest out-migration are **Uttar Pradesh (24%)**, **Madhya Pradesh (17%)**, and **Bihar (16%)**.
- **Digital Ecosystem Progress:** The government’s **digital health ecosystem** is progressing fast: **6 in 10 people** have an **ABHA number**, **50 crore health records** are linked, **38% of health facilities** and **26% of health personnel** are registered on the system.
 - **ABHA number** is a **14-digit ID** that creates a **cloud-based account** for securely storing **digital health records**.

Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana

- **About:** **Ayushman Bharat-PM-JAY** is India’s flagship health insurance scheme providing **financial protection** for **secondary and tertiary care** to vulnerable families, aiming to reduce **catastrophic hospital expenses** and promote **Universal Health Coverage (UHC)**.

- Formerly **National Health Protection Scheme (NHPS)**, it **subsumed the Rashtriya Swasthya Bima Yojana (RSBY, 2008)** and is run by the **Ministry of Health & Family Welfare**.
- **Target Beneficiaries:** It covers **12 crore families (around 55 crore people)**, prioritizing the **poorest 40%** of the population. **Beneficiaries** are identified through the **Socio-Economic Caste Census (SECC-2011)** and prior **RSBY coverage**.
 - **Senior citizens aged 70+** are eligible irrespective of income, totaling around **6 crore beneficiaries**.
- **Funding Pattern:** The scheme is **fully government-funded** with **Centre-State sharing: 60:40** for most states, **90:10** for North-Eastern and Himalayan states, and **100% central funding** for Union Territories without a legislature.
- **Key Components:**
 - **Ayushman Arogya Mandirs (AAMs):** It plans plan to set up **1,50,000 centres** (formerly Ayushman Bharat Health and Wellness Centres) to provide comprehensive, free primary healthcare, including non-communicable diseases, palliative and rehabilitative care, oral, eye, ENT, and mental health services.
 - **Pradhan Mantri Jan Arogya Yojana (PMJAY):** It provides health coverage of **Rs 5 lakh per family per year** for secondary and tertiary care hospitalization.
- **Implementing Structure:**
 - **National Health Authority (NHA):** Autonomous body, chaired by **Union Health Minister**.
 - **State Health Authority (SHA):** Headed by a **CEO** appointed by the state government.
 - **District Implementing Unit (DIU):** Chaired by **District Collector/DC/DM**.
- **Benefits Offered:**



Issues Hindering Universal Health Coverage in India	Suggestions
■ Low Public Health Spending: 1.84% of GDP vs 2.5% target (NHP 2017); High out-of-pocket expenditure (OOPE) stood at 39.4% ■ Limited Coverage: Schemes like AB-PMJAY leave out the “missing middle”; focus on secondary/tertiary care, neglects primary & outpatient services ■ Rural–Urban Divide: Urban-centric healthcare workforce; Rural areas lack public health & paramedical staff ■ Weak Primary Care: Overcrowding in tertiary hospitals; health system tilted towards treatment over prevention ■ Regulatory Gaps: Poor private sector regulation, quality inconsistency; weak health data systems hinder policymaking	■ Increase Funding: Raise public health spending to 2.5% of GDP; strengthen primary care via AAMs and establish a robust gatekeeping system ■ Insurance Integration: Affordable cover for excluded groups; include outpatient care, diagnostics, medicines ■ Health Workforce: Expand medical & nursing colleges in underserved areas; Incentives for rural staff; train CHWs, nurses, paramedics ■ Use of Technology: Promote telemedicine, ABHA ecosystem; public campaigns on NCDs, sanitation, nutrition ■ Governance Reforms: Enforce Clinical Establishments Act, 2010; Use evidence-based treatment guidelines, improve data systems

■ Key Achievements:

- **Wide Reach:** Over 35.4 crore Ayushman cards issued; operational in 33 States/UTs.
- **Gender Equity:** 49% of cards issued to women, with 3.61 crore hospitalizations availed.
- **Financial Impact:** 21% reduction in out-of-pocket expenses and 8% decline in emergency health loans.
- **District Hospital Gains:** Annual net benefit of USD 26.1 million, projected to reach USD 41.8 million (USD 169,607 per hospital).

Appointment of Interlocutor for Gorkhaland Talks

The Union Government has appointed the former **Deputy National Security Adviser (NSA)** as interlocutor to engage with Darjeeling hill leaders on key demands, including **Gorkhaland statehood and ST status for 11 Gorkha sub-tribes**.

- The move aims to find a political resolution to long-standing identity and autonomy issues in the region.
- However, the West Bengal state government has criticized the decision as “unilateral” and inconsistent with the principles of cooperative federalism.

Federal Complexity of the Gorkhaland Movement

- **Constitutional Provision:** Article 3 empowers Parliament to form new states or alter existing boundaries.
 - The state legislature’s opinion is consultative, not binding, ensuring national flexibility.
 - However, frequent boundary demands, such as Gorkhaland, strain Centre–State relations and test India’s federal harmony.
 - The demand, therefore, is not just political but also a test of constitutional accommodation within the Indian Union.
- **Demand for a Separate State:** Demand for Gorkhaland has been Central to Gorkha identity politics since the 1980s, reflecting aspirations for recognition and self-governance.

- Proposed to include **Darjeeling, Terai, and Dooars** regions within West Bengal.

- **Demand for Scheduled Tribe (ST) Status:** 11 Gorkha sub-tribes—including Rai, Limbu, Gurung, Tamang, and others—seek ST recognition.

- Would enable access to reservation benefits, education, and government jobs.
- Despite multiple assurances, the recognition process remains pending, deepening community frustration.

- **Concerns over the Agnipath Scheme:** The short-term Agnipath military recruitment policy created uncertainty among Nepali-origin Gorkhas, traditionally serving in the armed forces.

- Nepal raised concerns that it may violate the 1947 Tripartite Agreement, which guaranteed pension and service rights.

- **Geopolitical Sensitivities:** Reports indicate China’s possible interest in recruiting Gorkhas, raising strategic concerns.

- Maintaining robust India–Nepal–Darjeeling coordination is vital for border stability and preventing external influence.

Gorkhaland Movement

- **Origins (1980s):** The demand for a separate state of Gorkhaland was first raised by Subhash Ghising, founder of the Gorkha National Liberation Front (GNLF).
 - The agitation, driven by identity and administrative concerns, witnessed widespread violence and prolonged strikes during the 1980s.
- **2017 Agitation:** The movement resurfaced strongly in 2017, leading to 104 days of strikes and clashes across Darjeeling and adjoining hills under the Gorkha Janmukti Morcha (GJM).
- **Institutional Attempts:**
 - 1988: Formation of the Darjeeling Gorkha Hill Council (DGHC) after a tripartite agreement between the Centre, the West Bengal Government, and GNLF.

- **2011:** The **Gorkhaland Territorial Administration (GTA)** replaced the DGHC through another tripartite accord signed with the **Centre, West Bengal Government, and GJM**.
- GTA was designed to provide administrative autonomy within the framework of West Bengal but has been criticized for **limited powers and ineffective governance**.

Gorkhas

- **Origin:** The Gorkhas (or Gurkhas) are a martial community originating from Nepal, known for their courage, loyalty, and military service.
 - Derive their name from the Gorkha Kingdom in western Nepal founded by Prithvi Narayan Shah (1743–1775).
 - After the Anglo-Nepal War (1814–1816), the British began recruiting Gorkhas into their army.
 - The Gorkha regiments became an integral part of the Indian Army post-independence.
- **Ethnic Composition:** They comprise multiple ethnic groups - Gurungs, Magars, Rais, Limbus, Tamangs, among others.

**Steps Taken to Address the
Concerns of the Gorkhaland Demand**

- **Administrative Reforms:** Establishment of **Darjeeling Gorkha Hill Council (1988)** and later the **Gorkhaland Territorial Administration (2011)** to grant **limited autonomy** in local governance, development, and cultural matters.
 - Regular elections to GTA aimed to ensure **political participation** of local Gorkha leaders.
- **Dialogue and Peace Initiatives:** The Centre has periodically held **tripartite talks** with the **West Bengal Government and Gorkha leadership** to address grievances and prevent unrest.
- **Cultural and Ethnic Recognition:** Several **Gorkha festivals and cultural events** have been granted recognition and promotion under **Ministry of Culture schemes**.
 - Inclusion of **Nepali language** in the **Eighth Schedule of the Constitution (1992)** provided linguistic and cultural legitimacy.
- **Review of ST Status Demand:** The **Ministry of Tribal Affairs and Anthropological Survey of India** have conducted **studies** to assess eligibility of 11 Gorkha sub-tribes for **ST inclusion**.
- **Security and Economic Measures:** Focus on improving **infrastructure, tourism, and livelihoods** in the Darjeeling hills to reduce dependence on agitation-based politics.

- The Centre and State have promoted **tea, horticulture, and eco-tourism initiatives** as part of regional development.

Measures to Address the Gorkhaland Demand

- **Strengthen Local Governance:** Empower the **Gorkhaland Territorial Administration (GTA)** with greater fiscal and legislative powers, similar to the Bodoland Territorial Region.
- **Promote Inclusive Development:** Invest in education, tea industry reforms, horticulture, and eco-tourism under schemes like PM-DevINE (Prime Minister’s Development Initiative for North East Region) and PRASAD for tourism.
- **Address ST Status Demands:** Expedite the review to include eligible Gorkha sub-tribes under the Scheduled Tribe (ST) category, ensuring access to benefits from schemes like **Vanbandhu Kalyan Yojana and TRIFED initiatives**.
- **Strengthen Strategic and Cultural Ties:** Deepen India–Nepal–Darjeeling cooperation in recruitment, trade, and cultural exchange under the Neighbourhood First Policy to reinforce unity and border stability.
- **Empower Youth and Communities:** Promote entrepreneurship and skill training through PMEGP, Skill India, and Startup India to channel Gorkha aspirations toward peace and progress.

Delhi Declaration 2025

The **Delhi Declaration on Local Action for Global Climate Goals**, adopted at the **ARISE Cities Forum 2025** in New Delhi, is set to be presented at **COP30 in Belém, Brazil**. It serves as a landmark commitment from cities of the Global South to shape climate action through multilevel governance.

Delhi Declaration 2025

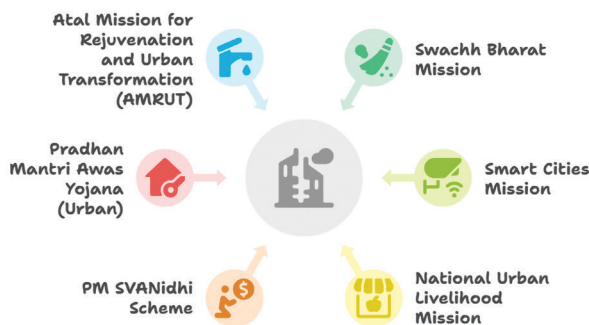
- **About:** The Delhi Declaration 2025 marks a major milestone in strengthening urban climate leadership and resilience, especially across the Global South.
- **Key Commitments of the Delhi Declaration:**
 - **Advance Local Climate Action:** Strengthen and resource multilevel **Nationally Determined Contributions (NDCs)** for measurable climate outcomes.
 - **Drive Inclusive Urban Resilience:** Promote adaptation, circular economy practices, and nature-based solutions in city planning.
 - **Promote Just Transitions:** Ensure fairness and equity in the shift toward net-zero emissions.
 - **Empower Citizens:** Expand participation of women, youth, and communities in climate decision-making.

- **Strengthen Governance:** Build data-driven, transparent, and accountable systems for urban climate action.
- **Mobilise Climate Finance:** Enable direct and predictable access to climate finance for cities.
- **Champion Global South Leadership:** Encourage South-South cooperation, innovation, and knowledge sharing.
- **Significance:** The declaration represents a **collective urban commitment** to act locally while influencing global climate policy. It positions cities as pivotal players in achieving sustainable, resilient, and equitable growth pathways.

ARISE

- **Full Form:** Adaptive, Resilient, Innovative, Sustainable, and Equitable
- **Objective:** To create a collaborative platform for city leaders, experts, and policymakers to discuss sustainable urban futures.
- **Led by:** ICLEI South Asia (International Council for Local Environmental Initiatives) - a global network of over 2,500 local and regional governments committed to sustainable urban development.

India's Urban Development Initiatives



Significance of Urban Climate Governance for India and the Global South

- **Urban Climate Governance & Urbanisation Trends:** Urban Climate Governance refers to the **framework of institutions, policies, and collaborations** that enable cities to plan and implement climate action.
 - It ensures that **urban areas**, which contribute to over **70% of global CO₂ emissions**, become **centres of climate solutions**, not sources of vulnerability.
 - Over 50% of the global population lives in cities; projected to reach **68% by 2050 (UN)**.
 - India adds nearly **10 million new urban residents each year**, heightening risks from **heatwaves, pollution, and floods**.
 - Examples of city-level leadership include **Pune and Surat's heat action plans**, **Indore's waste circularity**, and **Kochi's nature-based flood solutions**.
- **Disproportionate Vulnerabilities:** The **urban poor** suffer most due to informal housing and weak access to services.
 - Existing **waste, water, and energy systems** are already overstressed, and climate change worsens these strains.
- **Bridging Policy and Practice:** While national policies exist, action remains **top-down**. The **Delhi Declaration** urges locally determined actions.
 - Strengthened **urban climate governance** ensures resilience, inclusivity, and effective translation of global climate goals into local realities,

India's Initiatives in Urban Climate Governance

- **National Mission on Sustainable Habitat (NMSH):**
 - Part of the **National Action Plan on Climate Change (NAPCC)**.
 - Focuses on **energy efficiency in buildings, sustainable mobility, and solid waste management** in cities.
- **Smart Cities Mission (SCM):**
 - Aims to develop **100 smart cities** focusing on **climate-smart infrastructure, renewable energy, and efficient resource use**.
 - Encourages **integrated command centres** for data-driven governance.
- **ClimateSmart Cities Assessment Framework (CSCAF):**
 - CSCAF has been developed to evaluate cities on **five key themes**: energy, mobility, water, waste, and urban planning.
- **National Institute of Urban Affairs (NIUA) Initiatives:**
 - Leads the **Climate Centre for Cities (C-Cube)** to help urban local bodies mainstream climate action.
- **AMRUT 2.0 (Atal Mission for Rejuvenation and Urban Transformation)**
 - AMRUT 2.0 promotes **water security, green spaces, and climate-resilient infrastructure**.
- **National Clean Air Programme (NCAP)**
 - **NCAP** launched in 2019, originally aimed for a 20%-30% reduction in PM2.5 and PM10 levels by 2024, on the 2017 baseline levels.
- **Urban Forestry & Nature-Based Solutions**
 - Initiatives like **Nagar Van Yojana** promote **urban green cover** to mitigate heat and enhance carbon sequestration.
- **Green Urban Mobility Initiatives**
 - Under the **National Electric Mobility Mission Plan (NEMMP)** and **FAME Scheme**, cities are shifting toward **electric and public transport systems**.

Nation & States

Ladakh's Protest for Sixth Schedule Status

Ladakh has witnessed renewed protests demanding **statehood** and **Sixth Schedule status**, highlighting discontent among its predominantly **tribal population** over the lack of **constitutional safeguards** since its reorganization as a **Union Territory in 2019**.

Sixth Schedule of the Indian Constitution

- **About:** The Sixth Schedule, enshrined in **Articles 244(2) and 275(1)**, is based on the **Bardoloi Committee's recommendations** to safeguard tribal governance.
- **Provisions:** It empowers Governors to establish **Autonomous District Councils (ADCs)** and **Autonomous Regional Councils (ARCs)**, providing self-rule to tribal areas.
 - ARCs allow the Governor to divide an autonomous district into separate regions if it has **different Scheduled Tribes**.
 - Each ADC usually has up to 30 members (26 elected, 4 nominated by the Governor) serving a five-year term (Bodoland Territorial Council in Assam is an exception, it has more than 40 members).
 - Currently, the Northeast has 10 ADCs across Assam, Meghalaya, Mizoram, and Tripura.
- **Purpose:** The Schedule was designed to **protect tribal identity, culture, land, and governance systems** in areas where tribal populations are significant, while still keeping them within the broader framework of the Indian Union.
- **Powers of ADCs and ARCs:**
 - **Legislative Powers:** Councils can make laws on subjects such as land, forests, agriculture, village administration, inheritance, marriage/divorce, social customs, and mining (with restrictions). All laws require the **Governor's assent**.
 - **Judicial Powers:** Councils can establish courts to try cases involving Scheduled Tribes, except for serious crimes.
 - **Executive Powers:** Councils can set up and manage schools, markets, dispensaries, roads, water bodies, and local infrastructure.
 - **Financial Powers:** Can levy and collect taxes, tolls, and land revenue within their areas.

Reasons Behind Ladakh's Demand for Sixth Schedule Status

- **Loss of Representation:** After **Jammu and Kashmir's 2019 reorganization**, Ladakh became a **Union Territory without a legislature**, reducing local autonomy and representation.
 - Previously, it had four **assembly members** and a more empowered LAHDC. Now, decision-making is **largely bureaucratic**, causing fears of outsider dominance, creating a sense of distance from governance.

- **Land Protection and Tribal Identity Concerns:** Changed domicile policy in J&K has sparked fears over **land ownership, jobs, and demography** in Ladakh. Communities fear dilution of their **cultural and linguistic heritage**.

- The **National Commission for Scheduled Tribes (NCST)** in 2019 suggested including Ladakh under the Sixth Schedule, since **Over 97% of Ladakh's population is tribal**. Land ownership was already restricted to protect locals. The region's **unique culture and ecology** require special safeguards.

- **Limited Autonomy of Existing Councils:** Ladakh has **two Hill Councils** (Leh and Kargil), but they are **not under the Sixth Schedule** and have very restricted powers, mostly related to local taxation and land allotment.

- **Environmental Safeguards:** Ladakh's fragile ecosystem is under growing pressure from **mass tourism (5.25 lakh tourists in 2023)** and **large-scale infrastructure projects** such as the proposed mega solar park and geothermal energy zones.

- Incorporating the Sixth Schedule could empower local councils to enforce sustainable development and protect traditional land-use practices.

- **Economic Concerns:** **Graduate unemployment rate ~26.5%**, much higher than the national average. Lack of local job creation and a Public Service Commission fuels frustration.

- Greater autonomy in development planning could align policies with **local needs**.

Challenges in Granting Sixth Schedule Status to Ladakh

- **Constitutional Limits:** Sixth Schedule was meant for **northeastern tribal areas**, so applying it to Ladakh would need a **constitutional amendment**.

- **Security Concerns:** Ladakh is a **border region**, and giving more autonomy could make **coordination of security and administration harder**.

- **Administrative Issues:** Experience from northeastern states shows **Autonomous Councils often rely on state funds**, leading to **financial dependency** and may face **political interference**, reducing their effectiveness.

- Local councils may lack **trained staff and governance experience** to manage new powers.

- **Balancing Development and Autonomy:** Managing **infrastructure, tourism, and projects** while protecting tribal lands and the environment is tricky.

- **Precedent Risks:** Granting this status could **encourage other tribal regions to demand similar powers**, complicating national policy.

Government Alternative Measures in Response to Local Demands

- **Employment Reservations:** 85% of government jobs reserved for locals (as per Domicile Certificate Rules 2025).
- **Political Representation:** One-third of seats in Ladakh Autonomous Hill Development Councils (LAHDC) reserved for women.
 - This is in line with the 33% reservation for women in panchayats introduced after the 73rd Amendment Act.
- **Cultural Protection:** Official languages include English, Hindi, Urdu, Bhoti, and Purgi, with support for promoting Shina, Brokskat, Balti, and Ladakhi.

Balancing Autonomy, Cultural Preservation, and Security in Ladakh

- **Environmental Legislative Authority:** Empower LAHDCs to legislate on renewable energy projects, water resources, and eco-sensitive tourism, ensuring development aligns with Ladakh’s fragile ecosystem.
- **Ensuring Security and Strategic Oversight:** Maintain central oversight on border management, defense, and strategic infrastructure, given Ladakh’s sensitive location.
 - Develop mechanisms for coordination between local councils and Union Territory administration for quick response during security contingencies.
- **Cultural Territorial Zones:** Establish ‘Cultural Heritage Zones’ where only locals can own property or operate businesses, safeguarding traditional communities and languages.
- **Local Resource Sovereignty:** Grant councils exclusive rights over high-value natural resources (salt, medicinal plants, sand, and minerals) with revenue used for local development and ecological conservation.
- **Youth & Innovation Hubs:** Set up local innovation centers focused on renewable energy, sustainable tourism, and handicrafts, giving youth employment while protecting culture.

Crowd Management in India

A campaign rally for a Tamil actor-turned-politician in Karur, Tamil Nadu turned tragic, resulting in multiple deaths and injuries.

Stampede

- **About:** A stampede is a sudden, uncontrolled rush of people or animals, usually triggered by panic, fear, or excitement, occurring in crowded areas and often causing chaos and casualties.
- **Stampede Incidence:** The NCRB report ‘Accidental Deaths and Suicides in India’ states that from 2000 to 2022, 3,074 lives were lost in stampedes, with nearly 4,000 stampede incidents recorded over the past three decades.

- **Cause of Death:** A major cause of stampede deaths is the “black hole effect.” In dense crowds, physical forces create unpredictable “force chains” between bodies, so if one person falls, it creates a void, causing others to lose balance and fall.
 - This domino effect leads to a pile-up, where people suffer compressive asphyxia under the weight of others.
 - During a stampede, crushing pressure on the chest prevents proper lung movement, causing hypoxia (low oxygen) and hypercapnia (high carbon dioxide), both life-threatening.

Causes of Stamepde	Impacts of Stamede
Immediate Triggers (rumors, sudden obstructions)	Stampedes result in sudden fatalities, severe injuries, and psychological trauma, while also generating grief and anger.
Systemic Failures (underestimating crowd size, poor crowd control, lack of preparedness)	These failures erode public trust in authorities, invite repeated scrutiny of safety protocols, and make it harder to implement sustainable reforms.
Behavioral Factors (panic spread, disregard for norms, star power, political influence)	Behavioral triggers cause uncontrolled crowd movement leading to trampling deaths, spark social unrest, and stigmatize mass gatherings or festivals.
Poor Infrastructure (narrow paths, blocked exits, slippery floors)	Increases the risk of falls and chain-reaction stampedes, causes critical injuries, and leads to economic losses as public participation in events declines.

Key Recommendations of NDMA for Crowd Management

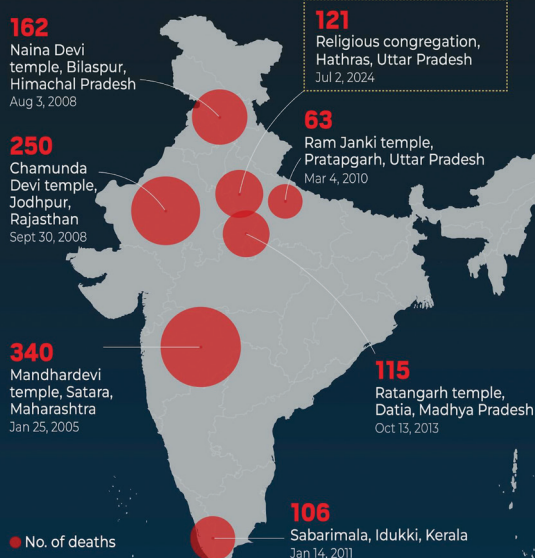
- **Pre-Event Planning:** Crowd estimation and capacity planning, safe site selection and layout design, and clear route planning with unobstructed entry, exit, and movement paths are essential to prevent stampedes.
- **Structural Safety:** Install barriers and railings in zig-zag queues, provide for virtual queue and approximate waiting time, ensure safe entry and exit points with outward-opening wide exits, and maintain effective communication systems and mobile connectivity to manage crowds.
- **On-Ground Management:** Implement crowd control and segregation with barricades, manage traffic and parking safely, use real-time crowd monitoring with CCTV and analytics.
- **Building Awareness:** Promote public awareness of risks and safe behavior, conduct training and drills for all agencies, and provide clear detailed Standard Operating Procedures (SOPs) for event management stakeholders.
- **Emergency Response:** Provide on-site medical aid, deploy Quick Reaction Teams (QRTs) for emergencies, and establish a clear Incident Command System for swift decision-making.

Global Best Practices in Crowd Management

- **Saudi Arabia:** After Hajj stampede, authorities used crowd simulations, restricted entry timings, and improved route planning.
- **United Kingdom:** In the UK, Wembley Stadium, London has been designed with multiple exits and advanced evacuation systems to handle 90,000 people safely.
- **South Korea:** In response to the Halloween stampede 2022, South Korea has deployed an advanced CCTV-based AI system to monitor crowd density in real time and provide timely warnings.
- **Japan:** Japan has implemented timed tickets and staggered entry measures to prevent sudden crowding.

Tragic Stampedes

Hathras crush among deadliest stampedes at religious gatherings



Note: Stampedes since 2000 where more than 50 people died have been mapped
Source: Media Reports & NIDM

Measures to Prevent Stampede

- **ICT Based Management:** Use AI-powered density analytics with CCTV, drone-based aerial surveillance, and mobile network & Wi-Fi heat mapping to monitor crowd size, flow, and bottlenecks in real-time for pre-emptive intervention.
- **Managing Human Behavior:** Use visual and sound cues to calm crowds, train staff in crowd whispering to reduce tension, and provide safe spaces and pressure-release paths for emergencies.
- **Build a Culture of Safety:** Launch public safe crowding campaigns with influential figures, enforce mandatory organizer certification on crowd management, and use crowd-sourced monitoring via hashtags or apps to report overcrowding.

- **Strengthen Accountability Framework:** Enact a **Crowd Safety Act** defining organizer liability, require **independent safety auditors** for large events, and implement a **national stampede database** to learn from past incidents.

Preventive Detention and National Security Act, 1980

Climate Activist Sonam Wangchuk was detained under the **National Security Act (NSA), 1980**, which allows the government to **act pre-emptively** against individuals considered a threat to **public order or national security**.

- He has been leading demonstrations demanding **statehood for Ladakh** and **Sixth Schedule** protections.

Preventive Detention

- **About:** Preventive detention means holding a person **not for a crime already committed**, but to prevent possible future actions that may threaten public order, security, or essential supplies.

- **Preventive detention** is anticipatory, imposed based on the likelihood of harmful actions in the future, while **punitive detention** is imposed as punishment after conviction through due legal process.

- **Constitutional Provisions:** **Article 22** explicitly permits preventive detention in India. A person can be detained for up to **3 months without approval from an Advisory Board** (comprising High Court-qualified judges).

- For detention beyond 3 months, approval of an Advisory Board is required.
- **Parliament** may prescribe conditions for detention beyond 3 months, set maximum periods, and lay down Advisory Board procedures.
- The detained person must be **informed of the grounds of detention**, though certain facts may be withheld in the public interest.

- ❖ The detainee should be given the earliest opportunity to challenge the order through a representation.

- **Significance:** Preventive detention supports **Article 355**, which mandates that the Union must protect states against **external aggression and internal disturbances** and ensure state governments function according to the Constitution.

- **Key Laws Related to Preventive Detention in India:**

- **National Security Act (NSA), 1980:** For state security and maintaining public order.
- **Unlawful Activities (Prevention) Amendment Act, 1967:** To combat terrorism and unlawful activities.
- **Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974:** To curb smuggling and foreign exchange violations.

- **State-specific Public Safety Acts** – To prevent threats to state security or public order.
- **Supreme Court on Preventive Detention:**
 - **Ameena Begum vs The State of Telangana (2023):** The court held that **preventive detention is an exceptional measure** meant for emergency situations and **should not be used routinely**.
 - **Rekha vs State of Tamil Nadu (2011):** SC ruled that preventive detention is an exception to **Article 21** and should be applied rarely and only in exceptional cases.
 - **Anukul Chandra Pradhan, Advocate v. Union Of India & Ors (1997):** Emphasised that the purpose of preventive detention is to **prevent harm to the security of the state, rather than to impose punishment**.

National Security Act, 1980

- **Background:** Preventive detention in India dates back to colonial times, when it was used to curb dissent during wars. After Independence, Parliament enacted the **Preventive Detention Act, 1950**, followed by the **Maintenance of Internal Security Act (MISA), 1971**, which was widely misused during the Emergency before being repealed in 1978.
 - In **1980**, the **National Security Act (NSA)** was introduced. It empowers the Centre, states, District Magistrates, and authorised Police Commissioners to detain individuals to **prevent actions “prejudicial to India’s defence, foreign relations, security, public order, or essential supplies.”**
- **Detention Orders:** A detention order under the NSA functions like a **warrant of arrest**. Once detained, a person can be held in designated places, moved across states, and subjected to conditions set by the government.
- **Procedural Requirements:** Grounds of detention must be communicated **within 5 to 15 days**. The detainee can submit a **representation to the government**. An **Advisory Board of High Court judges** must review the case within 3 weeks.
 - If the Board finds “no sufficient cause,” the detainee must be released.
 - Maximum detention period is **12 months**, though it can be revoked earlier.
- **Limitations of Safeguards:** Detainees **cannot have legal representation** before the Advisory Board. The government can **withhold certain facts** citing “public interest.” These provisions leave considerable discretion in the hands of authorities, raising concerns about potential misuse.

Crime in India 2023 Report

The **National Crime Records Bureau (NCRB)** released the **Crime in India 2023** report showing a **7.2% rise (compared to 2022)** in total crimes to over **6.24 million cases**.

Key Findings of the Report

- **Overall Crime Trend:** A crime was registered every **five seconds**, with **total cases** reaching **6.24 million**, including a **5.7% rise** under the **Indian Penal Code (IPC)** and a **9.5% increase** under **Special and Local Laws (SLL)**.
 - The report marks the **last year of data under the old IPC**, with future reports to be based on the new **Bharatiya Nyaya Sanhita 2023**.
- **Increase in Cybercrimes:** **Cybercrimes** saw the highest spike, rising **31.2%**, driven by **cheating through personation**, while **IT Act offences** rose **36%**.
- **Social Crimes:** **Crimes against women** increased slightly by **0.7%** to **4.48 lakh**, crime against **Scheduled Castes (SCs)** by **0.4%**, while crime against **Scheduled Tribes** surged by **28.8%**, and **crimes against children** rose **9.2%**.
- **Henoious and Other Crime:** **Murder** fell by **2.8%**, **rape** decreased by **5.9%**, **dowry deaths** dropped **4.6%**, and **offences against the State** fell **13.2%**
- **Status of Police and Judicial Efficiency:** The **charge-sheeting rate for IPC cases** slightly improved from **71.3% to 72.7%**, but **pending investigations** rose from **28% to 29.2%**.
 - The **conviction rate for IPC crimes** remained at **54%**, highlighting the need for stronger **prosecution** and faster **trials**.

National Crime Records Bureau

- The **NCRB** was established in **1986** following recommendations from the **Tandon Committee**, the **National Police Commission (1977–1981)**, and the **MHA Task Force (1985)**.
- Operating under the **Ministry of Home Affairs (MHA)**, NCRB serves as a central **repository of crime and criminal data**, aiding investigators in solving cases.
- It also manages and coordinates the **Crime and Criminal Tracking Network & Systems (CCTNS)** and publishes key reports, including **Crime in India**, **Accidental Deaths & Suicides**, and **Prison Statistics**.

Reasons for Rising Cybercrime in India

- **Massive Internet User Base:** India has over **800 million internet users**, many being **first-time users with low digital literacy**, making them vulnerable due to poor **cybersecurity awareness**.
- **Sophistication of Cybercriminals:** The **NCRB 2023 report** reveals a significant shift from **traditional violent crimes to technology-driven and economic offences**, highlighting the growing professionalization of cybercrime.
 - Criminals now rent **hacking tools**, **phishing kits**, and **botnets**, enabling targeted vishing and smishing attacks using leaked personal data
- **Cross-Border Nature:** Many **cybercrimes originate abroad**, particularly in **Southeast Asia**, complicating **jurisdiction, investigation, and prosecution** for Indian authorities.

- **Privacy Deficit:** Data breaches and the illegal sale of personal information (Aadhaar, phone numbers, financial records) on the dark web enable highly targeted social engineering attacks.

India's Current Cybersecurity Framework

- **Legislative Measures:** Information Technology Act, 2000, Digital Personal Data Protection Act, 2023.
- **Institutional Framework:** Indian Computer Emergency Response Team (CERT-In), National Critical Information Infrastructure Protection Centre (NCIIPC), Indian Cyber Crime Coordination Centre (I4C), Cyber Swachhta Kendra.
- **Strategic Initiatives:** Bharat National Cybersecurity Exercise.

Emerging Warfare Technologies and Self-Reliance in Defence Innovation

Defence Minister of India highlighted that future wars will be shaped by **Artificial Intelligence (AI), autonomous systems, drones, quantum computing, and directed-energy weapons** as seen in **Operation Sindoor** and called on **entrepreneurs and startups** to set new benchmarks and create India's first **defence unicorn**.

Emerging Technologies

Transforming the Nature of Warfare

- **Artificial Intelligence (AI) and Machine Learning (ML):** AI analyzes battlefield data in real-time, helping commanders make faster strategic and tactical decisions.
 - AI-powered algorithms **detect, respond to, and predict cyber threats** in real-time, protecting military networks.
 - AI/ML, combined with **information technology**, can be used for military or political purposes, such as cyberattacks, espionage, and information warfare.
 - These methods **target government, civilian, and military systems** through tactics like viruses, denial-of-service attacks, and phishing.
 - ❖ A notable example is the **Stuxnet worm**, which specifically targeted Iranian nuclear facilities.
- **Autonomous Weapons and Loitering Munitions:** These include **unmanned aerial vehicles (UAVs)** like **Israel's Harop** and **India's Nagastra-1** that make target decisions without human intervention.
 - These loitering munitions autonomously seek and engage targets, combining missile and drone capabilities for precise strikes at a lower operational cost.
- **Directed Energy Weapons (DEWs);** The DEWs like **India's Directionally Unrestricted Ray-Gun Array (DURGA) II** are high-energy lasers and microwave weapons, can incapacitate or destroy targets like missiles, drones, or vehicles without using traditional explosives.
- **Quantum Technologies:** It has the potential to **break encryption systems**, posing significant threats to secure communications in warfare.
 - They can also be used for military applications like logistics optimization and simulation modeling.
- **Space-Based Warfare:** The **militarization of space** has made satellites critical for global positioning, communications, and real-time intelligence.
 - Military satellites provide navigation, weather data, surveillance, and communication for forces on the ground, air, or sea.
 - The ability to destroy or disable enemy satellites in space has become a strategic priority. Countries like China and India have tested **Anti-satellite weapons (ASAT)** capabilities (e.g., **India's Mission Shakti**).
- **Hypersonic Missiles:** Missiles like **BrahMos-II** travel at speeds greater than **Mach 5** (five times the speed of sound), allowing them to evade current missile defense systems.
 - These weapons can **carry conventional or nuclear warheads** and are difficult to intercept due to their velocity and maneuverability.
- **3D Printing and Additive Manufacturing:** It allows for the **rapid prototyping and production of spare parts, weapons, and even drones** directly on the battlefield.
 - This reduces supply chain dependency and the need for large inventories.
- **Biotechnology:** It has the potential to enhance soldiers' physical and cognitive abilities, such as **creating advanced prosthetics or developing genetic modifications** to improve endurance or resistance to fatigue.
- **Swarming Technology:** It involves **multiple small drones operating autonomously in coordinated patterns**.
 - Powered by AI, they can overwhelm defenses, enable reconnaissance, disrupt communications, and execute precision strikes, offering flexible and surprising capabilities in air and naval operations.
- **Augmented Reality (AR) and Virtual Reality (VR):** AR and VR are enhancing **training methods by providing realistic simulations for soldiers** without the need for actual combat.
 - These technologies help train personnel in complex battle scenarios, improving decision-making and tactical responses.
- **Exoskeletons:** **Powered exoskeletons** are designed to **augment human strength** and endurance, allowing soldiers to carry heavier loads and reduce fatigue during long operations.

Strategic Importance of Self-Reliance in Defence Innovation for India

- **National Security & Self-Reliance:** Indigenous technology reduces reliance on foreign arms, addressing challenges like **CAATSA (Countering America's Adversaries Through Sanctions Act)** and ensuring strategic autonomy.
 - The vulnerability of foreign-controlled infrastructure, like **Global Positioning System satellites** (controlled by the US), could be a potential weakness during conflicts.
 - **NavIC (Navigation with Indian Constellation)**, India's regional satellite navigation system, ensures reliable, independent navigation capabilities, **crucial for military operations and critical infrastructure** without relying on foreign satellite systems.
 - Atmanirbhar Bharat aims to achieve Rs 50,000 crore in defence exports by 2029, promoting the domestic production of key defense technologies.
- **Strategic Deterrence:** Indigenous missiles like **Agni-V** and **BrahMos** provide India with a robust deterrence capability, critical for regional stability.
 - India's defense strategy includes **strengthening nuclear deterrence** through self-reliant missile systems and maintaining a credible second-strike capability.
- **Operational Flexibility:** Technologies like **Nirbhay** missile and **Dhanush** artillery are built to suit India's terrain and strategic needs, ensuring optimal performance.
 - Indigenous systems can be quickly modified and integrated based on real-time feedback, strengthening national defense readiness.
- **Economic Growth & Industry Development:** The defense sector under **Make in India** creates high-tech jobs and strengthens the domestic manufacturing ecosystem.
 - Increasing exports like the **Akash missile** to countries like **Sri Lanka** and **Myanmar** supports economic growth and geopolitical influence.
- **Global Geopolitical Influence:** Growing defense exports contribute to **India's strategic partnerships**, particularly in the Indo-Pacific region positioning India as a key global arms supplier.

India's Initiatives Related to Defence Startups

- Make in India (Defence)
- Defence Acquisition Procedure (DAP) 2020
- Defence Procurement Manual (DPM-2025)
- Defence Production and Export Promotion Policy (DPEPP) 2020
- Innovations for Defence Excellence (iDEX)
- Technology Development Fund (TDF)
- SRIJAN Portal
- Positive Indigenisation Lists (PILs)

India's Progress Towards a Naxal-Free Bharat

The **Maoist insurgency in India is gradually losing ground**, with key leaders surrendering and many cadres leaving the movement. This reflects India's steady progress in **eliminating Naxalism** and strengthening law enforcement efforts in affected regions.

Status of Maoism or Left Wing Extremism (LWE) in India

- **Shrinking Geographical Spread:**
 - LWE, once **India's biggest internal security challenge**, spread across the "Red Corridor" from Nepal's border in the north to Andhra Pradesh in the south, covering parts of Chhattisgarh, Jharkhand, Odisha, Maharashtra, and Andhra Pradesh.
 - It is **now confined to small pockets in central India**, primarily in **Chhattisgarh**, with a limited presence in Jharkhand, Odisha, and Maharashtra.
- **Decline in Violence and Cadre Strength:**
 - In 2013, 126 districts reported Naxal violence; by March 2025, this dropped to 18 districts, with only **6 classified as "Most Affected."**
 - LWE incidents dropped by more than 50% between 2004–14 and 2014–23.
 - Maoism in India is **in retreat**, both territorially and operationally, with the government aiming for a **completely Naxal-free Bharat by March 2026**.

Maoism

- **About:** Maoism is a form of communism developed by **Mao Tse Tung**. It seeks to capture state power through **armed insurgency, mass mobilization, and strategic alliances**, supported by propaganda and misinformation against state institutions.
 - Mao called this process, the '**Protracted People's War**', where the emphasis is on 'military line' to capture power.
 - **Naxalism** often referred to as **LWE**, is an armed movement **inspired by Maoist ideology** that seeks to overthrow the Indian government through violent rebellion.
 - ❖ The term Naxalite comes from the 1967 uprising in Naxalbari, West Bengal, led by CPI(M) members. It refers to those advocating armed revolt against the state.
- **Maoist Ideology:** The central theme of Maoist ideology is the **use of violence and armed insurrection** as a means to capture State power.
- **Indian Maoists:** The largest and the most violent Maoist formation in India is the **Communist Party of India (Maoist)** formed in 2004.
 - The CPI (Maoist) and its front organizations were banned under the **Unlawful Activities (Prevention) Act, 1967**.
 - ❖ Front Organizations are the off-shoots of the parent Maoist party, which professes a separate existence to escape legal liability.

India's Strategy to Eliminate LWE

- **Policy Framework (2015):** Aiming for a Naxal-free Bharat by 2026, supported by the 'SAMADHAN' operational strategy.
- **Security Measures:**
 - **Forces Deployment** (CAPFs, Joint Task Forces lead operations), **Fortified Police Stations, SRE Scheme** (Supports training, policing, and rehabilitation).
 - **Financial Control:** NIA and Enforcement Directorate target Maoist funding.
- **Development Initiatives:**
 - **Road & Telecom Connectivity:** Expand networks and 4G access by 2025.
 - **Financial Inclusion & Skill Development:** Banks, ATMs, ITIs, and Skill Centres in remote areas.
 - **Infrastructure Assistance:** Special funds for district facilities and police infrastructure.
- **Public Engagement:**
 - **Civic Action Programme (CAP):** Provides financial support for CAPFs to engage in welfare activities, fostering trust between security forces and communities.
 - **Media Plan:** This scheme is being implemented as a sub-scheme under the Umbrella Scheme 'Modernization of Police Forces'.
 - **Rehabilitation:** Education and financial aid for surrendered Maoists.

OPERATIONAL STRATEGY 'SAMADHAN' TO FIGHT LEFT WING EXTREMISM

- S** – Smart Leadership
A – Aggressive Strategy
M – Motivation and Training
A – Actionable Intelligence
D – Dashboard-based Key Result Areas and Key Performance Indicators
H – Harnessing Technology
A – Action Plan for Each Theatre
N – No access to Financing



Challenges Encountered in Controlling LWE (I-N-S-U-R-G-E-N-T)	Measures for Naxal-Free Bharat (R-E-I-N-F-O-R-C-E)
■ I – Insufficient State Reach: Limited state presence in remote areas.	■ R – Revitalize Local Governance: Empower panchayats for quicker grievance resolution.
■ N – Neglect / Lack of Development: Poor infrastructure and economic opportunities.	■ E – Employment & Livelihoods: Create rural jobs to reduce dependence on illegal activities.
■ S – Socio-economic Grievances: Poverty, unemployment, and inequalities drive support for Maoism.	■ I – Infrastructure Development: Improve connectivity, electricity, and healthcare.
■ U – Unstable Governance: Weak administration and corruption allow LWE groups to thrive.	■ N – Nurture Culture: Strengthen democratic values and preserve local culture.
■ R – Remote / Difficult Terrain: Dense forests and inaccessible regions complicate operations.	■ F – Focus on Social Justice & Land Reforms: To address grievances, implement FRA and land redistribution.
■ G – Guerrilla Tactics & Mobilization: Maoists use guerrilla warfare and ambushes to evade capture.	■ O – Organize Community Policing & Trust-building: Build trust through SMART policing and civic action.
■ E – External Support: Some Maoist groups receive backing from external sources.	■ R – Rehabilitate & Counter Extremism: Launch awareness campaigns and support rehabilitation.
■ N – Narratives / Propaganda: Maoists exploit local grievances to recruit and maintain influence.	■ C – Cooperatives & Economic Empowerment: Promote rural cooperatives and market access for economic growth.
■ T – Tribal / Community Influence: Local and tribal support helps sustain Maoist presence.	■ E – Enforcement & Border Security: Strengthen border security, monitor arms flows, & disrupt Maoist logistics.

Economic Scenario

Global Innovation Index 2025

India has climbed to the **38th** position among **139 economies** in the **World Intellectual Property Organization's (WIPO) Global Innovation Index (GII) 2025**, improving from **48th** place in 2020.

Global Innovation Index

- **GII**, introduced in **2007**, was developed to provide **comprehensive metrics and methodologies** for assessing the wide spectrum of **innovations across economies**.
- Published annually by the **World Intellectual Property Organization (WIPO)**, the **GII** has become a **key benchmark** for evaluating an economy's **innovation ecosystem**.
- Recognized by the **UN General Assembly** as an **authoritative reference** for shaping **Science, Technology, and Innovation (STI)** policies.

Key Highlights of the *GII 2025*

- **India Related Findings:** India rose from **81st (2015) to 38th (2025)**, ranking **1st** among lower-middle-income economies and in **Central & Southern Asia**.
 - Its strengths are **Knowledge & Technology Outputs (22)** and **Market Sophistication (38)**; weaknesses lie in **Business Sophistication (64)**, **Infrastructure (61)**, and **Institutions (58)**.
- **Top-Ranked Economies:** The **top five** most innovative economies are **Switzerland (1st)**, **Sweden (2nd)**, **USA (3rd)**, **South Korea (4th)**, and **Singapore (5th)**. **China** ranked in the **top 10** for the first time, securing the **10th** position.
- **Top Innovation Clusters:** The world's top **innovation clusters** are **Shenzhen–Hong Kong–Guangzhou (1st)** in China and Hong Kong, and **Tokyo–Yokohama (2nd)** in Japan.
- **Positive Socioeconomic Impact:** **Labor productivity** rose **2.5%** in 2024, **global life expectancy** reached **73 years**, and **extreme poverty** fell to **817 million**, under half of 2004 levels.
- **Rapid Technological Advancement:** In 2024, **technology advanced** with notable gains in **supercomputing efficiency** and **battery prices**. However, **adoption slowed**, progress in **wind power** and **genome sequencing** lagged, and **novel drug development** regressed.

Current Status of India's Innovation Landscape

- **Funding Mechanism:** As per the latest available R&D statistics, India invested **0.65% of GDP** in R&D, compared to **China (2.43%)**, **Brazil (1.15%)**, and **South Korea (2.5%)**.

- **Patent Filings:** India now ranks **6th** globally in terms of **patent applications**. Meanwhile, India's **patent-to-GDP ratio**—a measure of the economic impact of patent activity—grew significantly, from **144 in 2013 to 381 in 2023**.
- **Strategic Policy Support:** Programs like **Startup India**, **Make in India**, and **Production Linked Initiative (PLI)** scheme offer foundational support.
 - The **Fund of Funds for Startups (FFS)** has a **Rs 10,000 crore corpus**, and the new **one lakh crore Research, Development, and Innovation (RDI)** scheme seeks to boost **private sector R&D**.
 - The **Startup India Hub** links more than **1,140 incubators and accelerators**. In **2023**, the **Startup India Seed Fund Scheme** provided **Rs 945 crore** for seed funding.
- **DeepTech Push:** Significant investments focus on strategic sectors, with the **National Semiconductor Mission** backed by **Rs 76,000 crore**, alongside the **IndiaAI Mission** and **PLI for quantum technologies** to enhance **self-reliance**.
- **Rise of Unicorns & Cleantech:** India has over **100 unicorns**, the **3rd-largest ecosystem globally**. The **private sector** leads in **Cleantech**, with startups like **Ather Energy** and **Ola Electric**.
- **Geographical Diversification:** Initiatives like **Atal Tinkering Labs (ATLs)** are decentralizing innovation, with over **45% of DPIIT-recognized startups** emerging from **tier-2 and tier-3 cities**.

Barriers to India's Innovation Ecosystem

- **Inadequate Financial Investment:** India's **gross expenditure on R&D (GERD)** remains **~0.7% of GDP**, far below leading innovative nations like the **United States (3.5%)**, **South Korea (4.9%)**, and **Israel (5.6%)**, highlighting a critical funding gap.
- **Dominance of Public Sector in R&D Funding:** India's **innovation ecosystem** is largely **publicly funded**, with the **private sector contributing only 36.4%** (2020–21), unlike advanced economies where **industry leads R&D investment**.
 - Additionally, a **disconnect between academic research and industry needs** limits **interdisciplinary collaboration** and **commercialization of research**.
- **Skewed Focus Towards Strategic Sectors:** Historical R&D focus on **defense and space technology** (e.g., **Agni missile systems, space missions**) has led to under-investment in **industrial R&D** for emerging areas like **semiconductors, advanced materials, pharmaceuticals**.

- **Risk-Averse Industrial Culture:** Industries prefer **importing proven technologies** over **high-risk, long-gestation indigenous R&D**; startups focus on **business model innovations** in **IT services and e-commerce** rather than **foundational deep-tech research**.
- **Bureaucratic Hurdles:** Despite achievements by **DRDO, ISRO, BARC laboratories**, **technology transfer** to the market is impeded by **procedural delays, intellectual property challenges**, and lack of **streamlined processes**.

Reforms to Strengthen India’s Innovation Ecosystem

- **Boost R&D Investment:** India should **boost R&D spending** over the next decade, increase **private and philanthropic contributions**, and fully deploy the **Rs 1 lakh crore innovation fund (Union Budget 2025–26)** within 3–5 years to accelerate **deep-tech research**.
- **Promote University-Led Research:** Higher Education Institutions (HEIs) can drive **upstream research** to expand knowledge frontiers and **help industry commercialize mature technologies**.
- **Establish Public-Private Innovation Hubs:** India should establish **sector-specific innovation hubs** in **AI, semiconductors, and clean energy**, linking **government, academia, and industry**, and providing **shared resources** like **testing facilities, prototype labs, and venture funds**.
- **Facilitate Cross-Sector Collaboration:** Sector-specific industry councils can guide **policy, pinpoint funding gaps**, and channel resources to critical **innovation sectors**. For instance, a **CleanTech Council** could prioritize **solar, EVs, and energy efficiency**.
- **Regional Innovation Clusters:** Regional innovation clusters in non-metro areas can leverage **local government and private resources** to foster **entrepreneurship and innovation**, supporting **rural agri-tech** and **social enterprises** with **funding, mentorship, and infrastructure**.

India’s Tea Industry

According to the **Executive Director of the International Tea Committee**, India has the potential to become a **global tea superpower**, supported by its strong **production capacity**, large **consumption base**, and growing **export opportunities**.

Key Facts Regarding Tea

- **About:** Tea is a beverage made from the **Camellia sinensis** plant and is the **world’s most consumed drink after water**.
- **Tea Board of India:** Established under the **Tea Act of 1953**, it is a **statutory body** under the **Ministry of Commerce** with its **head office in Kolkata** and overseas offices in **London, Dubai, and Moscow**.
 - Provides financial and technical support for the cultivation, production, and marketing of tea.

- **Growth Conditions:**
 - **Climate:** Tea is a tropical and sub-tropical crop that thrives in **hot, humid conditions**.
 - **Temperature:** It grows best between **20°–30°C**, while temperatures **above 35°C or below 10°C** can damage the plant.
 - **Rainfall:** Requires **150–300 cm of well-distributed rainfall** annually.
 - **Soil:** Prefers **slightly acidic, calcium-free soil** with a **porous sub-soil** to allow free water percolation.
- **Factors Contributing to the Crisis in Industry:**
 - **Weather-Driven Decline:** Extreme heat in May 2024 followed by **flooding in Assam** cut India’s tea production by **30% to 90.92 million kg**, its lowest in over a decade.
 - **Supply-Demand Imbalance:** There is a growing gap between the demand for tea and its supply, creating further pressure on the industry.
 - **Stagnant Prices:** Assam, which accounts for 55% of India’s tea production, has been particularly affected by stagnant prices.
 - **Intense Competition:** India is facing stiff competition from other major tea-producing countries like Kenya.
 - **Rising Input Costs:** Over the past decade, the costs of essential inputs have increased by 9-15%, while tea prices have only risen by 4%.
 - ❖ The ban on 20 **pesticides** raised **tea prices** due to costly alternatives further straining the profitability of the sector.

Current Status of India’s Tea Market	
■	2 nd largest producer & consumer; 3 rd largest exporter (after Kenya & China).
■	Producing regions– Assam, WB, TN & Kerala account for 96% of production.
■	Consumes 80% of its tea (Highest- Turkey).
■	Major importers– Russia, Iran, UAE, USA, UK, Germany & China.
■	96% of exports are black tea, along with regular, green, herbal, masala & lemon tea.

Ensuring Sustainability of India’s Tea Industry

- **Shift to Quality & Value Addition:** Promote **GI-tagged, specialty, and branded teas** for better **export prices**.
- **Diversify Export Markets:** Target **South America, Middle East, and Africa** to reduce reliance on volatile markets.
- **Boost Domestic Consumption:** Increase **per capita intake** through marketing, **ready-to-drink (RTD)**, flavored, and wellness teas.
- **Improve Farm-Gate Value:** Ensure **small growers** receive a fairer share via **direct markets, Farmer Producer Organizations, (FPOs), and transparent auctions**.

- **Learning from Other Countries:** Equip farmers to produce **high-quality, sustainable tea**; Kenya's **Farmer Field Schools (FFSs)** provide hands-on training in **planting, fine-plucking, and certification preparation**.

World Food India 2025

World Food India 2025, India's flagship food processing event, aims to position India as a '**Global Food Hub**'. The event concluded with the signing of **Memoranda of Understanding (MoUs)** worth over **Rs 1 lakh crore**, highlighting investments, innovations, and employment generation across multiple states.

World Food India

- WFI, conceptualized by the **Ministry of Food Processing Industries (MoFPI)**, is India's flagship food processing event. Since its first edition in 2017, followed by the **2nd in 2023, 3rd in 2024, and now the 4th edition in 2025**.
- It has grown to showcase India as the "**Food Basket of the World**," promoting investment, enhancing farm-to-fork linkages, encouraging sustainable food systems, and highlighting India's diverse food culture.

Landscape of the Food Processing Sector in India

- **Food Processing:** It involves methods to transform raw agricultural, animal, or fish **products into edible, commercially valuable finished or semi-finished products**, altering their original physical properties.
- **Levels of Processing:**
 - **Primary processing:** Basic cleaning, grading, and packaging of agricultural products.
 - **Secondary processing:** Converting **ingredients into edible products** (e.g., milling wheat into flour).
 - **Tertiary processing:** Creating **ready-to-eat foods** (e.g., baking bread from flour).
- **Growth of India's Food Processing Industry:** India is **largest producer of milk, onions and pulses, Second largest producer of rice, wheat, sugarcane, tea, fruits & vegetables and eggs**.
 - India's agricultural and processed food exports reached **USD 49.4 billion in 2024–25, with processed foods contributing 20.4%** (up from 13.7% in 2014–15). The sector employs 2.23 million in registered units and 4.68 million in unregistered ones.
 - Registered food business operators rose from 25 lakh to 64 lakh, supported by 24 mega food parks.
 - **Operation Greens** and 225 Research and Development projects added 20 patents and 52 commercialized technologies.

India's Initiatives:

- **Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)** aims to boost Indian brands internationally.
- **Production Linked Incentive Scheme for Millet-based Products (PLISMBP)** encourages **Ready-to-Eat (RTE) and Ready-to-Cook (RTC)** millet products, promoting value addition and millet consumption.
- **Pradhan Mantri Kisan Sampada Yojana (PMKSY)** creates modern infrastructure, efficient supply chains, and reduces post-harvest losses.
- **PM Formalisation of Micro Food Processing Enterprises Scheme (PMFME)** supports micro food processing units with technical, financial, and business assistance.
- Under the **Make in India campaign**, the government allows **100% Foreign Direct Investment (FDI)** in food processing.
- The **Mega Food Park Scheme** provides integrated infrastructure for food processing, offering up to Rs 50 crore per project.

Measures to Strengthen India's Food Processing Sector

- **Cluster Development:** Set up **integrated food processing zones** near farm hubs with shared infrastructure (cold storage, labs, effluent plants), ancillary industries (packaging, logistics), and seamless transport links to **cut costs and boost rural–urban balance**.
- **Tech-Driven Supply Chain:** Use **blockchain for traceability, IoT for real-time monitoring, AI for demand forecasting**, and drones/satellite imaging for crop assessment to **cut wastage and improve efficiency**.
- **Financial Reforms:** Create **sector-specific credit schemes** aligned with crop cycles, a credit guarantee fund for SMEs, and tax incentives to attract private equity and **venture capital in food-tech**.
- **Quality Standards:** Harmonize Indian norms with global benchmarks (**Codex**), introduce **tiered certifications with market benefits**, deploy mobile testing labs, and link quality-based pricing to **National Agriculture Market (eNAM)**.
- **Regulatory Simplification:** Establish a single-window clearance and unified digital platform to cut delays and reduce compliance costs.
- **Export Ecosystem:** Develop **export-specific zones with plug-and-play facilities**, country-focused strategies, and a real-time market intelligence system; fully utilize PLISFPI funds to attract global majors.
- **R&D Boost:** Set up **Food Innovation Labs**, give weighted tax breaks for R&D, and build a national database of traditional food processing techniques for scaling up.

Opportunities	Challenges
■ Expanding Market: The food processing sector is growing rapidly, valued at USD 336 billion in 2023 and projected to double by 2032. ● This expansion creates jobs, adds value to agriculture, and strengthens India's GDP.	■ Infrastructure Gaps and Post-Harvest Losses: India lacks adequate cold chains, storage, and transport facilities, leading to nearly 30% food wastage and annual post-harvest losses of around Rs. 90,000 crore.
■ Urbanisation: Rising urban population and busier lifestyles are pushing demand for ready-to-eat, packaged, and convenience foods, expected to cross Rs. 12 lakh crore by 2025. This opens scope for product diversification and new brands.	■ Technology and Finance Barriers for SMEs: Small and medium enterprises struggle with high costs of modern machinery and limited access to credit. ● This reduces their productivity and weakens competitiveness against large firms.
■ Health, Wellness, and Organic Foods: Sustainability is driving demand for organic and plant-based products. The organic market is projected to reach Rs. 75,000 crore by 2025, with consumers increasingly willing to pay a premium.	■ Regulatory Labyrinth: India's food processing sector faces complex, overlapping regulations from bodies like FSSAI, Agricultural and Processed Food Products Export Development Authority, Bureau of Indian standards (BIS), and state agencies, creating high compliance costs and uncertainty, especially for SMEs. ● The absence of a single-window clearance system and frequent rule changes further hinder domestic growth and export competitiveness.
■ Technology and Innovation: Adoption of automation, AI, robotics, and smart packaging is transforming efficiency and quality. ● This transformation in the Indian food tech market opens new avenues for global competitiveness.	■ Shortage of Skilled Workforce and Low R&D: The sector faces a skill gap, with demand for millions of trained workers in food technology. Low investment in R&D limits innovation and development of value-added products.
■ MSMEs and Rural Employment: With 63 million MSMEs contributing to 30% of GDP, schemes like PMFME promote local entrepreneurship. ● This helps farmers move up the value chain and supports rural livelihoods.	■ Low Share in Global Processed Exports: Only 16% of India's agri-exports are processed products, compared to 25% in the US and 49% in China. This shows India's export potential remains underutilised. ● Frequent quality-related rejections hurt India's export reputation, with the EU detecting contamination in 527 products (2024). The lack of harmonization between Indian and global standards further limits competitiveness in international markets.

H-1B Visa Fee Hike

The U.S. President has signed an executive order mandating companies to pay **USD 100,000 per H-1B visa**, effective from **21st September**, with a duration of 12 months unless extended. This fee increase is expected to significantly affect **Indian IT firms**, which file the majority of H-1B petitions.

H-1B Visa Program

- **About:** The **H-1B visa** is a **temporary, non-immigrant visa** that enables **US companies** to hire skilled foreign professionals in specialized fields such as **STEM and IT**, requiring at least a **bachelor's degree**.
 - Introduced in **1990**, it was designed to help employers address **skill shortages** when qualified US workers were not available.
- **Validity Period:** The **H-1B visa** is valid for up to **six years**. After this, holders must either **leave the US for 12 months** before reapplying or seek **permanent residency (Green Card)**.
- **Share of Indians:** **Indians dominate H-1B approvals**, making up **70%+ annually since 2015**. China consistently ranks second, with **12–13% of approvals since 2018**.

- **Quotas and Exemptions:** Each fiscal year, there is a **cap of 65,000 new visas**. An **additional 20,000 visas** are available for those with a **US master's degree or higher**.
 - **Cap exemptions** apply for applicants continuing employment or working with **universities, affiliated nonprofits, and government research bodies**.
- **Benefits of H-1B Visa for Indians:**
 - **Dominance in Tech and STEM Fields:** **Indians make up over 70% of H-1B recipients**, dominating **IT and STEM roles**, with more than **80% of computer-related jobs** going to them, making them vital to **US tech companies**.
 - **Medical and Healthcare Contribution:** **Indians constitute about 22% of international medical graduates** in the US, representing **5–6% of all US physicians**. **H-1B holders** play a key role in **hospitals and surgical units**, addressing **healthcare staffing shortages**.
 - **Educational and Career Pathways:** Many **Indian students** use **H-1B visas** to work in the US after higher education, boosting **career prospects**. The visa also provides **global exposure**, enhancing **skills and employability**.

- **Strategic and Industry Benefits:** The program supports **Indian IT sector growth** by enabling deployment in **high-revenue US projects**, sustaining **over half its revenue**.

Impact of H-1B Visa Fee Hike on India

- **Impact on Indian Professionals:** The **reduction in H-1B visas** will limit **opportunities** for **Indian tech professionals**, restricting access mainly to **senior specialized roles** and blocking **career growth** for **early to mid-level talent**.
 - Existing **visa holders** may also face **job insecurity** as costly **renewals** and **transfers** deter **employers**.
- **Impact on Indian IT Companies:** A **USD 100,000 fee per employee** would undermine the **cost advantage** of Indian IT firms like **Infosys, TCS, and Wipro**, causing **revenue losses** and reduced **US contracts**.
 - To adapt, they would need to shift toward **local hiring**, greater **offshoring**, and increased use of **automation/AI**.
- **Impact on Indian Economy:** A drop in **H-1B visa holders** from India could cut **remittances** by up to **USD 400 million annually**, adding pressure on the **rupee**, which is already among **Asia's weakest-performing currencies**.
- **Impact on India-US Relations:** The H-1B restrictions could **strain a cornerstone of the India-US strategic partnership**, impacting a key economic and tech interest.
 - Indian professionals may **diversify globally**, seeking opportunities in **Canada, Australia, and Europe**.
- **Impact on US Companies:** It could **harm US companies** like Amazon, Microsoft, and Google by exacerbating **STEM talent shortages**, raising **wages and operational costs**, and forcing competition for a limited domestic workforce.

Other US Non-immigrant Visa Categories

- **O:** Foreign national with extraordinary ability in Sciences, Arts, Education, Business or Athletics.
- **H-2A:** Temporary agricultural worker.
- **H-2B:** Temporary worker performing other services or labor of a temporary or seasonal nature
- **B-2:** Tourism, vacation, pleasure visitor.
- **V:** Nonimmigrant Visa for Spouse and Children of a Lawful Permanent Resident.

Strategies that India can adopt to address the H-1B Visa Fee Hike

- **Diplomatic & Government-Led Measures:** Use forums like the **India-US Trade Policy Forum** and **2+2 Ministerial Dialogue** to show how the **H-1B fee hike** harms **US innovation** and **Indo-US strategic ties**.
 - Consider filing a dispute at the **WTO**, arguing the hike is a **protectionist measure** unfairly targeting **Indian IT**

companies, potentially violating the **General Agreement on Trade in Services (GATS)**.

- **Strategic Shift for Indian IT Companies:** They can accelerate the '**localization**' model to hire more **US-based talent** and boost **offshore delivery** using **AI, cloud, and telepresence technologies**.
 - Additionally, **Indian IT companies** should diversify **global markets** by expanding in **Europe, Japan, Australia, and the Middle East** to reduce **US dependency**.
- **Skill Development:** India should upskill professionals in high-value areas like **AI, cybersecurity, and quantum computing**, where higher **visa costs** remain justifiable for **US clients**.
 - Simultaneously, promoting **reverse migration** and **brain gain** can attract **talent** back to **India**, strengthening the domestic **tech ecosystem**.
- **Strengthen Advocacy:** Leverage the **Indian diaspora** to advocate for rational **immigration reforms**, emphasizing the contribution of **Indian talent** to the **US economy**.

Food Grain Storage in India

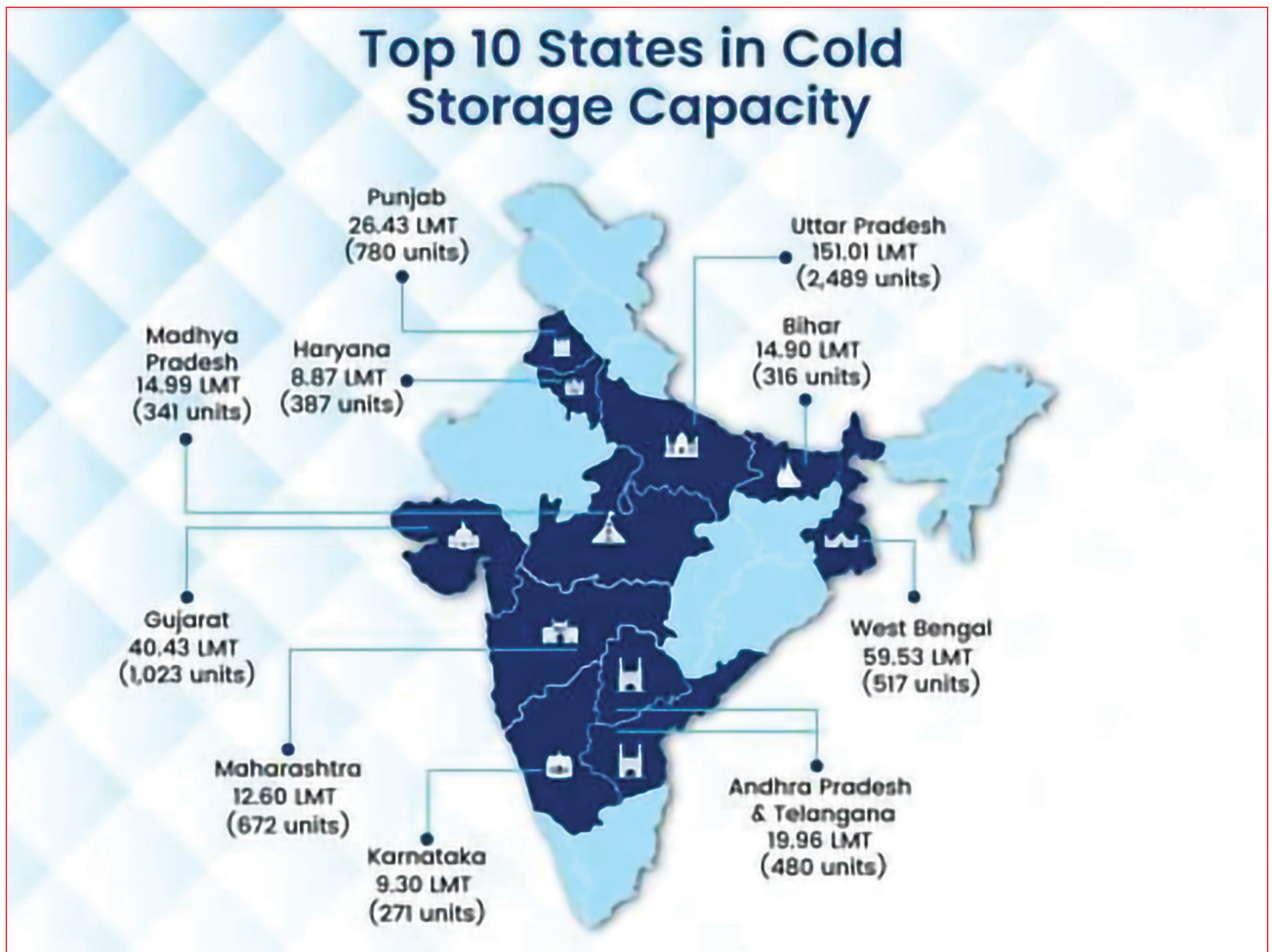
India has achieved a record foodgrain production of **353.96 million tonnes** for 2024-25, as per the **Third Advance Estimates**. To preserve this surplus, **modern storage infrastructure** is crucial to minimize **post-harvest losses**, ensure safe storage, and stabilize prices.

Foodgrain Storage System in India

- **About:** The foodgrain storage system in India is a **network of facilities and mechanisms** designed to **preserve harvested foodgrains**, **prevent post-harvest losses**, and ensure year-round availability for consumers and the **Public Distribution System (PDS)**.
 - It integrates **centralized, decentralized, and cold storage infrastructures**, linking farmers, state agencies, and markets.
 - Around **60-70%** of the foodgrain produced is stored at the **household level by small farmers**, utilizing traditional indigenous storage methods like **Morai** and **Mud Kothi**.

Storage System in India

- **Government Storage Agencies:**
 - **Food Corporation of India (FCI):** Established in 1965 through an Act of Parliament, FCI is the primary agency responsible for the storage of food grains in India.
 - ❖ It operates food storage depots nationwide, including silos, godowns, and **Cover and Plinth (CAP) structures**.
 - ❖ Currently, FCI and State agencies manage **917.83 LMT capacity**.



- **Central Warehousing Corporation (CWC):** Established under the **Warehousing Corporations Act, 1962**, the CWC manages the storage of agricultural produce and other notified commodities.
- **State Warehousing Corporations:** These are set up under respective state warehousing Acts to regulate the storage of certain goods within each state.
- **Private Agencies:** FCI also rents storage capacity from private owners to meet storage needs.
- **Other Stakeholders:**
 - Key contributors to grain management include the **Warehouse Development and Regulatory Authority (WDRA)**, **Railways**, and the **Civil Supply Departments** of states.
- **Stabilizes Prices:** Strategic storage prevents extreme price fluctuations.
- **Supports Farmers' Income:** Enables farmers to sell at optimal times, avoiding distress sales.
- **Strengthens Food Processing & Supply Chain:** Provides raw material availability for industries and export potential.

India's Initiatives to Enhance Food Grain Storage Infrastructure

- **Agriculture Infrastructure Fund (AIF)** was launched in **2020** to strengthen agricultural infrastructure across India.
 - It is a medium-long term debt financing facility through interest subvention and **credit guarantee support on loans for investment in viable projects for post-harvest management infrastructure and viable farming assets.**
- **Agricultural Marketing Infrastructure (AMI)** scheme is a key component of the **Integrated Scheme for Agricultural Marketing (ISAM).**

Importance of Foodgrain Storage

- **Reduces Post-Harvest Losses:** Proper storage preserves quantity and quality.
- **Ensures Food Security:** Maintains buffer stocks for PDS and national emergencies.

- The **objective** of this scheme is to **strengthen agricultural marketing infrastructure across rural India** by providing financial assistance for the construction and renovation of **godowns and warehouses**.
- **Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)** is a comprehensive scheme designed to **build modern infrastructure for the food processing sector**, creating a smooth and efficient supply chain from the farm gate to retail.
- It helps farmers **get better prices for their produce, reduces wastage, and supports the goal of doubling farmers' income** especially in rural areas, increases food processing levels, and boosts exports of processed food products.
- **Schemes for Augmentation of Storage Capacity**
 - Construction of Steel Silos for Modernized Storage.
 - Private Entrepreneurs Guarantee (PEG) scheme. Central Sector Scheme "Storage & Godowns" (Focus on NE).

Challenges Maintaining Grain Storage	Suggestions
■ High Post-Harvest Losses: India loses about 22% of its foodgrain output annually (~74 million tonnes in 2022-23).	■ Expand Scientific Storage: Scale up silos and modern warehouses (e.g., 50,000 MT silo in Bihar inaugurated in 2025).
■ Storage-Specific Losses: Around 6.58% of foodgrains are lost due to poor storage (pests, rodents, moisture damage).	■ Reduce Losses via Better Post-Harvest Practices: Curb cereal losses during drying, cleaning, and marketing by maintaining safe moisture levels.
■ Economic Burden: Annual storage losses are estimated at worth ₹7,000 crore , with insects responsible for ~₹1,300 crore in losses.	■ Encourage PPPs (Public-Private Partnerships): Strengthen the PEG Scheme by providing long-term hiring guarantees to attract private investors.
■ Dependence on CAP Storage: Nearly 90% of wheat in Punjab is stored under Cover and Plinth (CAP) , which is highly vulnerable.	■ Empower PACS (Primary Agricultural Credit Societies): Fast-track the computerisation of ~ 63,000 PACS to benefit ~ 13 crore farmers and improve transparency. Focus on North-East, hilly, and tribal regions to address storage gaps through targeted schemes.

Annual Survey of Industries 2023-24

The **Ministry of Statistics and Programme Implementation (MoSPI)** has released the **Annual Survey of Industries (ASI) for 2023-24**.

Key Highlights of the Survey

- **Gross Value Added (GVA):** Grew by **11.89%**, higher than both **output** (5.80%) and **input** (4.71%), showing better efficiency and higher value generation.
 - **Top Industries in Terms of GVA:** Growth was led by **basic metals, motor vehicles, chemicals, food products, and pharmaceuticals**, industries that are both **export-oriented and labor-intensive**.
 - ❖ Together, these sectors contributed nearly **48% of total industrial output**.
 - **Top 5 states by GVA:** **Maharashtra (16%), Gujarat (14%), Tamil Nadu (10%), Karnataka (7%), and Uttar Pradesh (7%)**.
- **Employment:** Employment grew **5.92%** year-on-year, showing that industrial growth translated into jobs. This sector added more than **half a crore (57 lakh) jobs** during the last decade 2014-15 to 2023-24.
 - **Average emoluments rose by 5.6%**, keeping pace with output growth, though wage gains still lagged behind overall GVA growth.
 - **Tamil Nadu, Gujarat, Maharashtra, Uttar Pradesh and Karnataka** are the top 5 States in respect of employment.

Annual Survey of Industries (ASI)

- The **National Statistical Office (NSO)** under MoSPI conducts the ASI, with MoSPI ensuring its coverage and data quality.
- The **ASI** covers factories registered under the **Factories Act, 1948**, bidi and cigar units under the **Bidi & Cigar Workers Act, 1966**, electricity undertakings not registered with the **Central Electricity Authority (CEA)**, and large establishments with 100 or more employees listed in the **Business Register of Establishments (BRE)** maintained by state governments.
- **Key Concepts & Definitions Used in ASI:**
 - **Gross Value Added (GVA):** Additional value created by the process of production. This is calculated by **deducting the value of total input from total output**.
 - **Total Emoluments:** The sum of wages and salaries including bonus.

Measures to Strengthen Industrial Sector Momentum in India

- **Strategic Industrial Corridors & Smart Cities:** Expanding the **National Industrial Corridor Programme with Smart Cities** enhances connectivity, lowers logistics costs, and attracts investment for balanced regional industrial growth.
- **Mission-Driven Sectoral Growth:** Leveraging the **National Manufacturing Mission (NMM), Make in India, and Atmanirbhar Bharat** initiatives can boost priority sectors like electronics, EV batteries, pharmaceuticals, textiles, and renewable energy.

- These missions provide policy clarity, fiscal incentives, and global linkages.
- **Skill Development & Workforce Readiness:** Programs like **PMKVY, Skill India, and sectoral skilling initiatives** prepare the workforce for advanced manufacturing, bridging the gap in technical expertise.
- **Financial Inclusion & MSME Support:** Enhancing access to credit via the **Credit Guarantee Fund Scheme, faster GST refunds, and startup incentives** ensures MSMEs can scale operations, innovate, and integrate into global value chains.
- **Sustainability & Green Manufacturing:** Promoting renewable energy adoption, **circular economy** practices,

and compliance with global standards (e.g., **EU Carbon Border Adjustment Mechanism (CBAM)**) positions India as an **eco-conscious manufacturer and strengthens export potential**.

- The **PLI scheme for Solar PV modules and green hydrogen mission** are examples of aligning industrial growth with sustainability.
- **Trade Facilitation & Global Best Practices:** Improving FTAs, reducing non-tariff barriers, and integrating lessons from **Japan's cluster-based industrialization of interconnected firms** can strengthen India's export competitiveness and value chain integration.

Opportunities and Challenges to India's Industrial Sector	
Opportunities	Challenges
■ All India Index of Industrial Production (IIP) recorded a 4.0 % year-on-year growth in August 2025. Manufacturing's 17% share of GDP, creates opportunities to boost economic growth and global competitiveness.	■ Logistics, power, water, ports, and warehousing deficiencies hinder efficiency despite reduced logistics costs.
■ India attracted USD 81.04 billion in gross foreign direct investment (FDI) in FY 2024-25, with manufacturing FDI rising 18%, positioning India as a global investment hub.	■ Micro, Small and Medium Enterprises (MSME) face credit gaps and high borrowing costs despite rising commercial credit exposure.
■ Rapid modernization in key industries (electronics, pharma, automotive, textiles) provides opportunities for higher value addition and global leadership.	■ Low-cost producers like China and Vietnam challenge Indian manufacturers; limited R&D and weak design capabilities restrict global competitiveness. Uneven adoption of Industry 4.0 among MSMEs, and concerns over job displacement from automation, limiting growth.
■ Initiatives like Production Linked Initiative (PLI), GST reforms, National Manufacturing Mission, and PM MITRA parks create opportunities to scale operations and attract investment.	■ Non-tariff barriers, Free Trade Agreements (FTAs) caution, and rising tariffs (e.g., US 50% on Indian exports) impact competitiveness.
■ Workforce upskilling via Pradhan Mantri Kaushal Vikas Yojana and other programs, along with youth-centric policies, is driving inclusive job creation.	■ Only 4.7% of the workforce is formally trained; mismatch between academic training and industrial needs restricts adoption of advanced technologies.
■ Green manufacturing, renewable energy, and net-zero targets present opportunities for innovation and global market alignment.	■ Decarbonization, net-zero commitments, ethanol blending, and compliance with global green standards add increased production costs.

Tackling Unemployment Trap in India

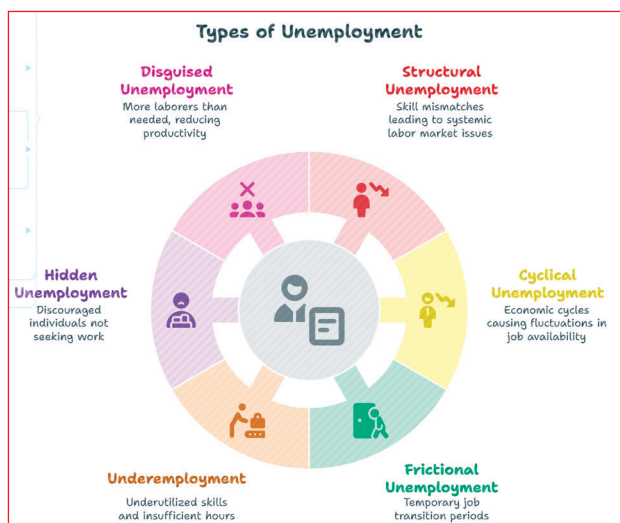
As per a leading global financial services firm, India must grow nearly **twice as fast (around 12%) to generate enough jobs for its youth and address underemployment**, in comparison, the **RBI projects only 6.5% GDP growth for FY25**, slightly above the **10-year average of 6.1%**, highlighting a significant growth-employment gap.

Status of Unemployment in India

- **About Unemployment:** Unemployment is when an **individual who is not employed and is seeking employment**, cannot find work. Unemployment is a key indicator of the health of an economy. It is calculated as:
 - **Unemployment rate** = (Number of Unemployed Workers/Total Labour Force) × 100. The **total labour**

force includes both **employed and unemployed** individuals, while those neither employed nor seeking work—such as **students**—are excluded.

- **State of Unemployment in India:**
 - **High Youth Unemployment:** As per the latest **Periodic Labour Force Survey (PLFS)**, India's overall **unemployment rate** fell to **5.1%**, but among **15–29-year-olds** it remained much higher at **14.6%**.
 - ❖ The **India Employment Report 2024** by the **International Labour Organization (ILO)** highlights that one in every three unemployed persons in India is a youth.
 - **Comparative Context:** **Asia's youth unemployment** stands at **16%**, higher than the **US's 10.5%**, with **India, China, and Indonesia** facing the most pressing **youth job challenges**.



Impact of Unemployment on Economy and Society

- **Economic Stagnation:** Unemployment leads to lost GDP and wasted human capital, creating a cycle of low demand as reduced consumer spending forces further business cutbacks.
- **Increased Poverty and Inequality:** Joblessness directly causes poverty and widens income gaps, as families without stable incomes struggle to afford basic necessities.
- **Social Instability:** High unemployment, particularly among youth, fuels social unrest, crime, and political instability due to widespread frustration and alienation.
- **Mental Health and Skill Crisis:** Prolonged unemployment causes psychological distress and deskilling, eroding individuals' employability and self-esteem over time.
- **Fiscal Burden on Government:** Unemployment simultaneously increases government spending on welfare benefits while reducing tax revenues, worsening the fiscal deficit.

Reasons for Unemployment in India

- **Demographic Pressure:** The World Bank warns that South Asia, including India, is failing to capitalise on its demographic dividend, as employment grew only 1.7% annually (2000–2023) against a 1.9% rise in the working-age population, widening the employment gap.
- **Skill Mismatch:** Only 4.7% of India's labour force has received formal skill training, resulting in an underutilized workforce. The education system's gap in industry-relevant skills has created a paradox of high unemployment alongside talent shortages.
 - Educated youth often prefer white-collar jobs over manual or blue-collar work, leading to high educated unemployment.
- **Jobless Growth:** India's economic growth of 6.5–7.8% is not creating enough jobs, especially in manufacturing, as India's global export share of only 1.8% limits manufacturing employment.
- **Gender Disparity:** Urban female unemployment (ages 15–29) is 25.7%, much higher than males at 15.6%, highlighting social and structural barriers to workforce participation.
- **Looming Technological Disruption:** The rise of automation and Artificial Intelligence (AI) threatens up to 69% of jobs in India (World Bank), particularly in manufacturing, data entry, and customer service, making reskilling and policy adaptation urgent.
- **Seasonal Employment and Agriculture Dependency:** In 2022–23, about 45.76% of India's workforce was in agriculture and allied sectors, offering mostly seasonal, underpaid jobs, while limited non-farm opportunities worsened rural underemployment and migration pressures.

Initiatives Taken by India to Generate Employment

- PM-DAKSH (Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi)
- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)
- Start Up India Scheme
- Support for Marginalized Individuals for Livelihood and Enterprise (SMILE)
- PM SVANidhi Scheme
- PM Vishwakarma Scheme
- National Education Policy 2020
- Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)
- Pradhan Mantri Kaushal Vikas Yojana

Reforms to Tackle Unemployment in India

- **Boost Labor-Intensive Manufacturing:** Focus on high employment multiplier sectors like textiles, apparel, leather, food processing, and electronics assembly, while improving export competitiveness through trade agreements.
- **Bridge the Skill Gap:** Align education with market needs by integrating vocational and practical skills (AI, data analytics, IoT) and expand reskilling/upskilling programs like Mantri Kaushal Vikas Yojana (PMKVY) for future-ready workers.
- **Support MSMEs:** Ease credit access and reduce compliance for MSMEs, while promoting start-ups through Startup India, mentorship, patent support, and a stronger venture capital ecosystem.

- **Address Underemployment in Agriculture:** Diversify the rural economy through **agro-based industries, food processing, and infrastructure projects**, while strengthening **alternative livelihoods** like **animal husbandry, fisheries, and beekeeping**.
- **Strategic Government Initiatives:** Sustain **public investment in infrastructure** (roads, railways, ports, housing) and focus on **flagship schemes** like the **Production Linked Incentive (PLI) Schemes** to boost **manufacturing** and generate **employment**.

Female Labour Force Participation in India

India's **female labour force participation rate (FLFPR)** has seen a significant rise in recent years. While this seems promising for gender equality, a closer look reveals persistent **challenges in employment quality, wages, and sectoral distribution** for women.

Trends in Female Labour Force Participation in India

- **FLFPR:** FLFPR includes women who are either employed or actively seeking work. The rise in **this metric does not necessarily reflect improved economic inclusion** if the work is unpaid or non-remunerative.
 - According to the Periodic Labour Force Survey (PLFS) (2023-24), the **FLFPR declined from 31.2% in 2011–12 to 23.3% in 2017–18**, marking a period of withdrawal of women from the labour market.
 - However, it **rose sharply to 41.7% in 2023–24**, suggesting renewed female engagement in economic activity.
- **Rural Women Driving the Increase:** The recent increase in FLFPR has been **driven largely by rural women**, not by urban participation.
 - **Rural distress, inflation, and the need to supplement household income** have compelled more women to engage in work-related activities.
 - However, these are **not necessarily formal or paid jobs**, much of this rise is due to unpaid or self-employment roles.
- **Return to Agriculture Instead of Diversification:** Contrary to expectations of **structural transformation**, women are **moving back into agriculture**, not out of it.
 - The share of rural women in agriculture **rose from 71.1% in 2018–19 to 76.9% in 2023–24**, while their presence in the industrial and service sectors declined.
 - This reflects a **reverse structural shift**, often linked to limited non-farm opportunities for women.
- **Unpaid and Self-Employment on the Rise:** Women's participation has increased mainly in **unpaid family labour** and **own-account work**, not in salaried or wage employment.

- Between **2017–18 and 2023–24**, women reporting "domestic duties" declined from **57.8% to 35.7%**, but "helpers in household enterprises" rose from **9.1% to 19.6%**, and "own account workers and employers" from **4.5% to 14.6%**.
- Thus, much of this rise represents a **shift from unpaid domestic work to unpaid or low-paid self-employment**.
- This indicates that **increased participation has not translated into better income security or job quality**.
- The rise in participation, therefore, **reflects economic distress rather than genuine economic inclusion**.

Barriers to Women's Labour Market Outcomes

- **Overrepresentation in Low-Productivity Sectors:** A disproportionate number of women remain concentrated in **agriculture and informal sectors**, limiting access to high-paying, stable jobs.
 - Despite India's growth in manufacturing and services, these sectors have remained **male-dominated** and **inaccessible** to many rural women.
- **The Double Burden:** In rural India, women's **domestic and economic roles often overlap**, making it difficult to clearly classify their work as "employment."
 - Many are involved in **subsistence or family-based enterprises**, which are often unpaid or undercounted in official data, inflating FLFPR figures without reflecting actual empowerment.
 - ❖ The **Economic Survey 2024** shows women's unpaid care work contributes **3.1% to GDP**.
 - Such 'invisible' labour rarely contributes to income or asset ownership, thereby offering **no pathway to empowerment**.
- **Gender Norms and Mobility Barriers:** Societal expectations around women's roles, limited access to safe public transport, and lack of childcare infrastructure significantly **curtail their mobility and job choices**.
 - Women often **prefer home-based or nearby work**, which further entrenches them in low-paying, unregulated sectors.
- **Informality and Absence of Social Protection:** Over **90% of employed women** are in the informal sector, where there is little to no access to **social security, maternity benefits, or legal safeguards**.
 - Such employment is typically **irregular, seasonal, and dependent on family or local networks**, making women's incomes volatile and dependent.

Suggestions

- **Redesign Employment Metrics:** Move beyond mere participation rates to include **measures of earnings, work conditions, hours worked, and asset control**.

- Integrate **National Statistics Office (NSO) Time Use Surveys** to capture unpaid care work and redefine what constitutes 'productive labour'.
- Redefine 'employment' to reflect **value-added work**, not just activity.
- **Targeted Formal Employment Creation:** Introduce **gender-sensitive incentives** under schemes like **Production-Linked Incentive (PLI)**, **Make in India**, and **MSME** support to create wage jobs for women.
 - Promote labour-intensive industries (e.g., textiles, food processing) in rural areas to facilitate **proximity-based employment**.
 - Expand **MGNREGA-like schemes** for women-specific tasks (e.g., afforestation, eldercare).
- **Enhance Care Infrastructure and Social Services:** Establish **community childcare centres**, **elderly care services**, and public cooking facilities to reduce women's unpaid burden.
 - These services act as '**social infrastructure**' enabling higher female workforce participation.
- **Invest in Skills and Digital Inclusion:** Launch **region-specific, demand-driven skill programs** focusing on sectors like health, education, logistics, and digital services.
 - Empower women to join **platform and gig economy jobs** with regulatory safeguards and digital access.
- **Recognize and Support Self-Employed Women:** Strengthen **Self-Help Groups (SHGs)** and link them with formal credit and market platforms.
 - Provide **enterprise training, e-commerce linkages, and digital financial literacy** to make self-employment more sustainable.
- **Challenge Deep-rooted Gender Norms:** Public campaigns, school-level sensitisation, and media narratives must promote **shared domestic responsibilities** and **female role models in non-traditional jobs**.

Rise in India's External Debt

India's external debt has risen to **USD 747.2 billion** at the end of June 2025, marking a **1.5% increase** over the previous quarter, as per the latest data released by RBI.

Current Status of India's External Debt

- **Valuation Effects:** The increase in external debt was largely driven by **valuation effects** arising from currency fluctuations.
 - The **depreciation of the US dollar** contributed to a **valuation loss of USD 5.1 billion**.
- **Debt Coverage:** Despite the increase in total external debt, **over 93% of the debt is covered by India's foreign exchange reserves**, ensuring strong **external resilience**.

- The **external debt-to-GDP ratio** stands at **18.9%**, reflecting a moderate and sustainable level of external liabilities.

Debt Maturity Profile:

- **Long-term debt** (maturity over one year) forms the bulk at **USD 611.7 billion**, while **short-term debt** declined to **18.1%** of total debt.
 - ❖ The **short-term debt-to-reserves ratio** has improved, reducing rollover and liquidity risks.

Currency-wise Composition

- **US Dollar: 53.8%** – The dominant currency in India's external debt, showing significant exposure to global monetary fluctuations.
- **Indian Rupee: 30.6%** – A substantial share in domestic-currency debt.
- **Japanese Yen: 6.6%** – A minor share.
- **Special Drawing Rights (SDRs): 4.6%** – A minor portion.
- **Euro: 3.5%** – A relatively smaller share.

Sector-wise Distribution

- **Non-financial Corporations: 35.9%** – The largest sector, reflecting the rise in private-sector external borrowings.
- **Government & Financial Institutions:** The remaining share of the external debt.

External Debt

- **About:** External debt refers to the **funds borrowed by a country from sources outside its borders**.
 - These sources include foreign commercial banks, international financial institutions like the **International Monetary Fund (IMF)** and the **World Bank**, as well as the governments of other nations.
 - It can be **denominated in foreign currency or domestic currency**, depending on the agreement.
- **Key Features:**
 - **Liability to repay:** Includes principal and interest.
 - **Currency exposure:** If borrowed in foreign currency, repayment depends on exchange rates.
 - **By sector:** Can be owed by **government, financial institutions, or private corporations**.
 - **By instrument:** Includes **loans, trade credits, bonds, deposits**, etc.

Challenges Associated with Rising External Debt

- **Exchange Rate Risk:** As external debt is often denominated in foreign currencies, fluctuations in exchange rates can increase the **repayment burden**, making it more expensive to service the debt.
- **Interest Burden:** **Rising debt increases interest obligations**, putting pressure on fiscal resources and reducing funds for development.

- Prolonged inflation can lead to higher interest rates, which in turn slows economic growth. This can result in an increased **external debt-to-GDP ratio**, putting further pressure on the economy.
- **Vulnerability to Global Shocks:** The global threat of stagflation could reduce demand for India's exports, negatively impacting the debt service ratio and further complicating debt repayment.
- **Crowding Out Domestic Investment:** Debt servicing may divert resources away from productive domestic investment and welfare spending.

Measures to Manage External Debt

- **Diversify Currency Exposure:** Reduce reliance on foreign currencies like the US dollar by promoting the use of local currency for external borrowing, such as **rupee-denominated debt**, to mitigate currency risks.
- **Adopt Sustainable Debt Practices:** Ensure that borrowed funds are directed towards productive investments, such as **infrastructure and development projects**, rather than consumption, to generate long-term economic returns.
- **Extend Loan Maturities:** Opt for **long-term loans to spread the repayment burden** over an extended period, reducing the immediate pressure on finances.
- **Strengthen Fiscal Policies:** Implement **robust fiscal policies that focus on reducing deficits**, controlling inflation, and ensuring economic stability, which in turn reduces external debt vulnerability.

Credit Reforms to Deepen Financial Markets

RBI announced a set of credit reforms to deepen **financial markets**, enhance the role of banks in corporate consolidation, and **advance rupee internationalisation**, amid rising trade tensions with the US and renewed **BRICS currency** discussions on alternatives to the US dollar.

Key Credit Reforms Announced by RBI

- **Finance Mergers and Acquisitions (M&As):** For the first time, **banks in India can lend directly for corporate takeovers** (earlier dominated by **Non-Banking Financial Companies (NBFCs)** and private funds), a domain previously restricted due to concerns over **misuse, promoter risk, and credit concentration**.
- **Rupee-Denominated Lending:** Indian banks can now **lend in rupees to neighbours like Nepal, Bhutan, and Sri Lanka**.
 - This move aims to reduce dollar dependence in regional trade and settlements, provide rupee liquidity, and promote the **internationalisation of the rupee** while strengthening India's monetary influence.
- **Increasing Capital Market Lending Limits:** The loan limit against shares has been raised to Rs 1 crore (from Rs 20

lakh), and **Initial Public Offering (IPO)** financing limit increased to Rs 25 lakh (from Rs 10 lakh).

- These measures aim to improve access to market-based financing and energise primary capital markets.
- **Use of SRVA in Corporate Debt:** Funds in **Special Rupee Vostro Accounts (SRVAs)**, can now be invested in corporate bonds and commercial papers, **not just government securities**.
 - It strengthens rupee liquidity and deepens India's bond market.
- **Expanded Currency Benchmarks:** The **Financial Benchmarks India Limited (FBIL)** will include more partner currencies beyond USD, Euro, Pound, and Yen. It enables direct forex quotes with more countries and reduces dollar dependence.
- **Revised Basel III Capital Norms:** From April 2027, RBI will implement **revised Basel III capital adequacy norms** for commercial banks.
 - The new standards are expected to **reduce capital requirements for certain sectors, particularly MSMEs** and residential real estate loans, by introducing **lower risk weights for these sectors**.
 - This aims to boost banks' capital adequacy ratios while **maintaining financial stability**.

Financial Markets in India

- **About:** Financial markets are platforms where securities like stocks, bonds, and currencies are traded. These markets, including **forex, bond, stock, money, and derivatives markets**, play a crucial role in a country's economic growth.
- **Components of Financial Markets in India:**
 - **Money Market:** Deals with **short-term financial instruments** (less than one year), facilitating borrowing and lending between banks and financial institutions.
 - **Capital Markets:** Involves **long-term instruments** (over one year). It includes the **primary market** (new securities) and **secondary market** (existing securities).
 - **Foreign Exchange Market:** Facilitates **currency trading**, crucial for international trade and investment.
 - **Derivatives Market:** Involves trading instruments like **options and futures** that derive value from underlying assets.
- **Importance of Financial Markets:** It supports **capital raising, risk management, and contributes to economic stability and growth**. They are essential for businesses, investors, and overall economic development. A failure in these markets can lead to **recession and unemployment**.

Implications of the Reforms

- **Enhanced Capital Access:** By allowing banks to fund takeovers, corporates now have access to **low-cost, structured finance for scaling operations**.

- However, this also increases exposure to promoter risk and demands **enhanced credit appraisal, monitoring, and governance safeguards** to prevent asset quality deterioration.
- **Corporate Sector Empowerment:** Easier access to structured bank finance enables well-governed companies to undertake **strategic expansions and sectoral consolidation**.
 - This is likely to catalyse growth in key sectors like infrastructure, energy, logistics, and manufacturing, improving global competitiveness.
- **Rupee Internationalisation:** Allowing rupee-denominated loans to neighbours positions **India as a regional financial anchor**. These reforms serve as a counterweight to global currency blocs, offering a practical alternative through **rupee-based trade and credit**.
 - Enabling investments of surplus SRVA balances into Indian corporate bonds further builds international confidence in Indian markets and deepens rupee liquidity abroad.

Reorienting India’s Private Capital Expenditure

Rising global **tariffs** and fluctuating external demand underscore the need **to prioritize domestic markets for economic stability**, thereby shifting the focus towards Indian private sector **capital expenditure (Capex)**.

Capital Expenditure (Capex)
■ About: • It refers to funds spent on acquiring, upgrading, or maintaining physical assets like property, equipment, or technology. It’s a long-term investment recorded as an asset and depreciates over time. Examples include machinery purchases and facility upgrades. • Unlike Operating expenses (Opex), which are the day-to-day costs of running a business, Capex involves substantial investments intended to generate long-term benefits. • The Indian government allocates capex through its annual budget, presented by the Finance Minister. • Capex Expenditure of Rs 11.21 lakh crore (3.1% of GDP) earmarked in FY2025-26. ■ Significance: Capex plays a vital role in economic growth due to its high multiplier effect. It boosts ancillary industries, creates jobs, and enhances labour productivity. • As a countercyclical fiscal tool, Capex stabilizes the economy and supports long-term revenue generation through asset creation. • It also helps reduce liabilities via loan repayments and catalyses private investment, making it crucial for sustained economic development.

Evolution of Domestic Capex in India
■ Pre-liberalisation: Businesses thrived under inward-looking policies and protected domestic markets, earning supernormal profits. ■ Post-liberalisation (1990s): Accumulated wealth enabled Indian firms to expand globally, acquire foreign entities, and build multinational operations. ■ Present context: External demand shocks, driven by rising tariff barriers, are prompting closer government-business collaboration to sustain economic growth, as existing public investments and policy reforms fall short.

Trends in Private Sector Capital Expenditure in India

- **Overall Growth in Capex:** Private sector capital expenditure (**capex**) increased by **66.3%** between **FY 2021-22** and **FY 2024-25**, but is expected to **decline by 25.5%** in **FY 2025-26**.
- **Nature of Investments:** In **FY25**, around **49.6% of enterprises** invested for **income generation**, **30.1%** for **upgradation**, and **2.8%** for **diversification**.
- **Sectoral Distribution:** The **manufacturing sector** accounted for the largest share at **43.8%**, followed by **information and communication** at **15.6%**, and **transportation and storage** at **14%**
- **Rise in Gross Fixed Assets (GFA):** The **average Gross Fixed Assets (GFA)** per enterprise in the **private corporate sector** grew by **27.5%** between **2022–23** and **2023–24**.

Role of Domestic Capex in Sustaining India’s Growth	Suggestions to Enhance Private Sector Capex
■ Boost Private Investment: India’s outward FDI at 12.6% CAGR vs global 3.9%; companies should utilise their record-high corporate profits & govt. incentives for domestic capex ■ Ensure Wage Growth: Despite 15-year-high profits (2023–24), real wage growth may fall from 7% (FY25) to 6.5% (FY26); firms must reduce contractualisation and empower formal sector workers, esp. in manufacturing. ■ Investing in R&D: Current R&D spend: 0.64% of GDP (vs China’s 2.1%); private sector share– 36% (vs ~70% in US, China & South Korea); shift focus to fundamental research for long-term gains	■ Institutional & Credit Support: Revamp Project Monitoring Group (PMG) for faster approvals; expand ECLGS to MSMEs & mid-sized firms; use CGSS for startup investments ■ Expand PLI: Include defense manufacturing & precision engineering; ensure timely, transparent PLI disbursements ■ Tax & Regulatory Reforms: Reintroduce/enhance accelerated depreciation benefits for machinery & plant investments; fast-track National Logistics Policy (2022) ■ De-risk Investments: Promote InvITs and REITs in sectors like roads, power and railways to attract private capital & share risks

Decarbonising Indian Railways

In July 2025, the Indian Railways successfully conducted a trial run of India’s first hydrogen-powered coach at the Integral Coach Factory (ICF), Chennai. It reflects the Indian Railways’ broader ambition of achieving net-zero carbon emissions by 2030.

Key Initiative Taken by Indian Railways for a Low-Carbon Future

- **Electrification and DFCs:** Nearly 45,000 km of broad-gauge track electrified in the past decade; 98% of the broad-gauge network now runs on electricity, aimed at reducing diesel reliance and cutting GHG emissions.
 - Efforts are underway to increase the rail freight share to 45% by 2030 through Dedicated Freight Corridors (DFCs).
- **Renewable Energy Integration:** A total of 756 MW of renewable capacity commissioned - including 553 MW solar, 103 MW wind, and 100 MW hybrid.
 - Over 2,000 railway stations now run on solar power; several have received the BEE “Shunya” net-zero certification.
- **Hydrogen for Heritage Initiative:** Under this programme, 35 hydrogen-powered trains will be introduced, including the one successfully tested at ICF in July 2025.
 - This initiative aligns with the National Green Hydrogen Mission, promoting hydrogen as a clean fuel alternative for non-electrified routes.
- **Climate Finance Support:** Since FY2023, India has issued ₹58,000 crore in sovereign green bonds, with ₹42,000 crore directed to transport electrification and rail expansion.
 - The Indian Railway Finance Corporation (IRFC) plays a key role, including a USD 500 million green bond (2017) and a ₹7,500 crore loan to NTPC Green Energy for renewable capacity building.
 - The World Bank has also extended a USD 245 million loan under the Rail Logistics Project to enhance freight efficiency.

Significance of Decarbonizing Indian Railways

- **Environmental Impact:** The hydrogen initiative, along with large-scale electrification, could help prevent 60 million tonnes of CO₂ annually, equal to removing 13 million cars from Indian roads.
- **Economic Savings:** By 2030, the Railways could save over ₹1 lakh crore in fuel costs through energy efficiency and electrification.
- **Energy Independence:** Green hydrogen can reduce India’s dependence on imported fossil fuels and boost the domestic clean energy ecosystem.

- **Public Awareness:** With 24 million daily passengers, Indian Railways can act as a mass-scale awareness platform for sustainable transport and climate action.

The State of Indian Railways
■ Indian Railways is the lifeline of India, transporting over 8 billion passengers annually. ■ Economic Role: Facilitates industrial and agricultural trade by transporting coal, iron ore, cement, and farm produce—reducing logistics costs and boosting exports. ■ Employment & Connectivity: With 1.2 million employees, it is one of the world’s largest employers, linking rural and urban India, and supporting livelihoods. ■ Sustainability: Aims for carbon neutrality by 2030 through full electrification, renewable energy adoption, and eco-friendly measures like bio-toilets. ■ Urban & Strategic Value: Expanding metro and rapid rail networks reduce congestion, while freight corridors strengthen defense logistics.

Challenges in Indian Railways’ Transition to Clean Energy

- **High Production Cost:** Producing green hydrogen remains expensive, making large-scale adoption financially demanding for an entity like the Railways.
- **Uncertain Running Costs:** The operational cost of hydrogen-fuel trains is yet to be established in the Indian context. Initial costs are expected to be high but may decline with increased deployment.
- **Small Diesel Share:** Railway traction accounts for only approx 3% of total national diesel use (as of 2021-22), compared to trucks (28%) and agriculture (13.2%).
 - Thus, full rail electrification eliminates only a minor portion of diesel emissions while other sectors remain major polluters.
- **Renewable Power Integration:** The success of electrification depends on sourcing renewable electricity rather than coal-based grid power to ensure genuine decarbonisation.

Approaches to Addressing Decarbonisation Challenges in Indian Railways

- **Cost Reduction Measures:** Invest in R&D and public-private partnerships to lower green hydrogen production costs through economies of scale and indigenous technology.
- **Rolling Stock Innovations:** Broader rollout of hydrogen fuel cell trains for cost-ineffective electrification routes.
 - Incorporate AI-powered energy optimization, aerodynamic coaches, and regenerative braking.
- **Behavioural Change and Awareness:** Introduce green certification for trains, carbon labelling of services, and public campaigns.
 - Encourage citizens and businesses to participate in climate-smart rail usage.

- **Green Power for Green Trains:** Electrification must be paired with **renewable energy procurement** to avoid emissions from a coal-heavy grid.
 - Long-term **power purchase agreements** with solar/wind producers recommended.
- **Financial Support:** Leverage green bonds, international climate funds, and Viability Gap Funding to sustain early-stage high costs.

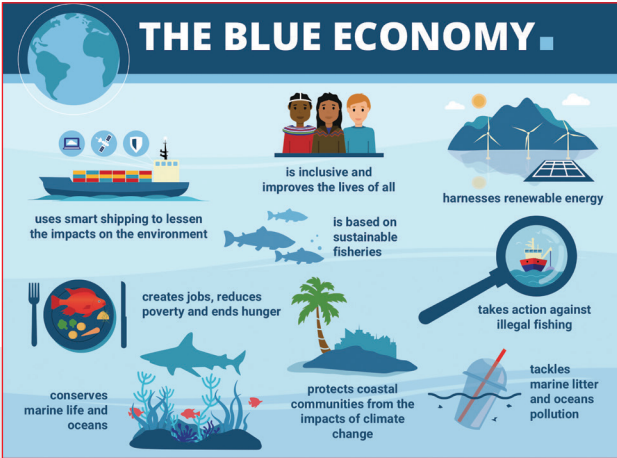
Unlocking India’s Deep-Sea and Offshore Fisheries

NITI Aayog has released a comprehensive report titled **“India’s Blue Economy: Strategy for Harnessing Deep-Sea and Offshore Fisheries”**, outlining a roadmap to sustainably unlock the vast potential of India’s marine resources, and strengthen the **Blue Economy**.

Highlights of the Report

- **Unlocking India’s Untapped Marine Potential:** India is the **second-largest fish-producing nation**, contributing **8% of global fish output**. Fisheries support around **30 million livelihoods** in the country. In FY 2023–24, fishery products exports earned Rs 60,523 crore.
 - Despite this, **deep-sea resources beyond the continental shelf remain largely unexploited**.
 - India’s **Exclusive Economic Zone (EEZ)** of over **2 million sq. km** holds an **estimated potential yield of 7.16 million tonnes**. Harnessing these resources can **reduce pressure on coastal fisheries, boost exports, and create employment**.
- **Roadmap for Harnessing India’s Fisheries:** The NITI Aayog report envisions a **three-phase roadmap** to unlock India’s

- deep-sea fisheries potential through **policy reform, technology, infrastructure, and sustainable practices**.
- **Phase 1 (2025–28) (Foundation and early growth):** It focuses on setting up strong policy frameworks, building capacity through training and modern infrastructure, and launching pilot projects to test deep-sea fishing models.



- **Phase 2 (2029–32) (Scaling up and achieving global competitiveness):** Aims to expand fleets, upgrade harbours and processing facilities, and **strengthen India’s presence in global seafood markets** through innovation and sustainability.
- **Phase 3 (2033 onwards) (Global leadership in sustainable deep-sea fisheries):** It envisions India emerging as a world leader in sustainable deep-sea fisheries by promoting high-value products, ecosystem-based management, and international collaborations.

Challenges in India’s Deep-sea and Offshore Fisheries	Recommendations of NITI Aayog
■ Lack of Scientific Stock Assessment: Inadequate data and limited use of tools like remote sensing, sonar & AI can lead to overfishing & unsustainable exploitation. ■ Weak Infrastructure: Poor harbor facilities, insufficient landing centers, and limited cold chain capacity result in post-harvest losses, lower fish quality, and reduced export potential. ■ Technological Gaps: Vessels lack modern fish-finding equipment, vessel monitoring systems (VMS), and selective fishing gear. ■ Limited Access to Finance: Challenges in getting institutional credit/insurance, hindering investment in technology and risk mitigation. ■ Outdated Legal Framework: Laws regulate only coastal waters up to 12 nautical miles, leaving deep-sea areas poorly governed. ■ Fragmented Policy Alignment with SDGs: Lack of integration b/w fisheries policies & SDG 14 (Life Below Water) hampers the development & conservation of marine resources.	■ Policy & Regulation: Establish a dedicated legal framework aligned with UNCLOS and streamline licensing, registration, and incentives for sustainable fishing. ■ Institutional Strengthening & Capacity Building: Create an agency under Department of Fisheries for deep-sea governance; enhance research, data collection, and stock assessments with specialized vessels. ■ Fleet Modernisation & Infrastructure: Support modern vessels with refrigeration and eco-friendly technology; upgrade deep-sea fishing harbours, landing centers, and cold chains. ■ Sustainable Fisheries Management: Implement marine spatial planning, protected areas, catch limits, bycatch reduction technologies, and real-time monitoring. ■ Financing & Resource Mobilisation: Establish a Deep-Sea Fishing Development Fund under PMMSY; encourage PPPs and explore soft loans for green technologies. ■ Implementation Mechanism: Launch a Deep-Sea Fishing Program (DSFP) with a dedicated management unit & advisory council.

International Relations

Wassenaar Arrangement

Protests erupted against Microsoft after allegations that its **Azure cloud services** were used to support Israeli military operations in **Palestine**, causing civilian harm and raising concerns over loopholes in the **Wassenaar Arrangement's** export control framework.

- **About:** The Wassenaar Arrangement is the **first multilateral body** focused on **export controls for conventional arms and dual-use** (civilian and potential military applications) technologies.
 - Established in **1996 in Wassenaar, Netherlands**, it succeeded the Cold War–era **Coordinating Committee for Multilateral Export Controls (CoCom)** and functions as a **forum where all decisions are taken by consensus**.
- **Objective:** The Arrangement aims to **enhance regional and international security** by promoting **transparency and responsibility** among participating states and coordinating policies to **prevent sensitive technologies** from reaching countries that could threaten security.
- **Structure and Governance:**
 - **Plenary:** It is the main decision-making body. The Chair rotates yearly, India chaired the plenary of the Wassenaar Arrangement in 2023.
 - **Secretariat:** Based in Vienna, Austria, supports all Arrangement functions.
- **Members:** 42 countries, India joined in 2017.
- **Working Procedure:** Its control framework includes the **Munitions List**, covering items like tanks, combat aircraft, and small arms.
 - **Dual-Use List**, which includes technologies with both civilian and potential military applications.
 - Participating states **agree on control lists and share information**, while each government retains **full discretion over licensing, implementation, and enforcement** of the rules.
- **Scope:** Originally, the Arrangement focused on **physical exports** (devices, chips, hardware). In **2013**, the Arrangement expanded to include “**intrusion software**”, i.e., software that bypasses network security or enables cyber-surveillance.

Challenges Related to Wassenaar Arrangement

- **Outdated Focus on Physical Exports:** Originally designed to control **hardware, chips, and devices**, not cloud services or digital technologies.

- Modern software, **Software as a Service (SaaS)**, and **Artificial Intelligence (AI)** tools fall into **grey areas** not explicitly regulated under the arrangement.
- Current control lists do not cover **mass surveillance, profiling, cross-border data systems, or human rights abuses**. Technologies that can be misused for repression are often **outside the scope of the Arrangement**.
- **Ambiguity Around Cloud and Remote Access:** Traditional rules of Wassenaar Arrangement do not treat **remote access, Application Programming Interface (API) calls, or administrative rights** as exports. This allows companies or states to bypass control regimes while enabling potentially risky technology transfers.
- **Voluntary Nature and Lack of Enforcement:** The Arrangement is based on **consensus**; any member can block changes. Domestic implementation varies by country, leading to **patchy coverage** and inconsistent enforcement.
 - Cloud services, AI, and cyber tools evolve faster than the **consensus-based decision-making** process. There is no mechanism to **fast-track urgent updates or sunset outdated controls**, making the regime less relevant.
- **Divergent National Interpretations:** Under the Wassenaar Arrangement each country interprets and implements the rules differently, creating **loopholes for defensive research or internal transfers**.
 - No standardized system exists to **coordinate cross-border licensing or track high-risk users**.
- **Limited Human Rights Consideration:** Licensing decisions under Wassenaar Arrangement often focus on **military use or weapon of mass destruction (WMD) proliferation** rather than the risk of **civilian harm, surveillance abuse, or discrimination**.

India and Wassenaar Arrangement

- Wassenaar Arrangement strengthens India's role in **non-proliferation and arms control**, it aligns India's **Special Chemicals, Organisms, Materials, Equipment and Technologies (SCOMET)** export controls with global norms.
- It facilitates access to sensitive **dual-use technologies** for space, defence, and digital sectors, and supports its **counter-terrorism diplomacy**, including initiatives like **No Money for Terrorism (NMFT)**.
- Wassenaar Arrangement strengthens India's credentials for **entry into the Nuclear Suppliers Group**, where China has blocked India's membership.
- It reinforces India's commitment to **global non-proliferation norms** despite being a **non-signatory to the Nuclear Non-Proliferation Treaty (NPT)**.

Measures to Strengthen the Wassenaar Arrangement

- **Expand the Scope of Controlled Technologies:** Include **cloud infrastructure, AI systems, digital surveillance tools, biometric systems, and cross-border data transfers**. Clearly define **benign versus malicious uses** to avoid over-regulating legitimate applications.
 - Learn from the **EU dual-use regulations** that treat cloud transmissions as potentially controlled technologies.
- **Redefine “Export” for the Digital Era:** Treat **remote access, API calls, software-as-a-service invocation, and administrative rights** as equivalent to physical exports.
 - Ensure that **virtual or cloud-based transfers** fall under control regulations to close loopholes.
- **Introduce Binding Rules and Minimum Standards:** Move beyond voluntary commitments to **mandatory licensing standards**. Implement **peer review mechanisms** to ensure compliance across member states.
 - Establish **shared watchlists of high-risk users or entities**. Enable **real-time red alerts** and **technical interoperability standards** among licensing authorities. Align national licensing policies to **mitigate cross-border risks** effectively.
- **Make Governance Agile and Responsive:** Create a **specialized technical committee or secretariat** to fast-track interim updates. Host **domain-specific regimes** for AI, cyber weapons, and digital surveillance technologies that can evolve faster than the general Arrangement.
- **Integrate Human Rights and Risk Assessment:** Consider **user identity, jurisdiction, oversight, legal mandate, and misuse potential** in licensing decisions.
 - Ensure technology control is not only about military use or WMDs but also **prevents mass human rights abuses**.

India-US Corn Conundrum

The **US** has expressed interest in **exporting corn** to **India**, but **India** remains **cautious** due to **GM crop concerns, strong domestic production, and political considerations**.

Factors Preventing India from Importing Corn from the US

- **Regulatory Ban on GM Imports:** India prohibits the import of **genetically modified (GM) corn**. With **94% of US corn in 2024 being GM** and India allowing GM cultivation only for **cotton**, importing US GM corn is **legally barred**.
- **High Tariff Barriers:** India’s **tariff structure** discourages corn imports: a **0.5 million tonne quota** faces **15% duty**, while excess imports incur **50% duty**, making **US corn commercially unviable**.
- **Protection of Domestic Farmers:** Indian officials warn that cheap imports could threaten the **maize-for-ethanol**

ecosystem and **new farmers**, prompting the government to **safeguard farmer incomes** amid rising domestic production and acreage.

- **Risk of Dumping:** The **US corn price** is just about **70%** of **Indian maize** without taking into account **shipping, marketing costs** and **business margins**. This would be equivalent to **dumping**, harming Indian maize farmers.
- **Sovereign Policy on Ethanol Blending:** Importing corn for **ethanol production** undermines India’s goal of **import substitution**, which aims to use **domestic produce** and save **foreign exchange** rather than create dependency on imports.
 - **20% ethanol blending** in petrol could save up to **USD 10 billion** in annual **forex outgo** through **import substitution**.

Key Facts Regarding Corn (Maize)

- **About: Corn (maize)** is a highly versatile crop, known as the **queen of cereals** for its high **genetic yield potential**.
 - Originating in **Central America**, it is a globally vital cereal for **human consumption, animal feed, and forage**.
- **Climate & Temperature:** Sensitive to frost (especially seedlings) requires a **frost-free period** with mean daily temperatures above **15°C** but tolerates **heat up to 45°C** with sufficient water.
 - It is highly responsive to **solar radiation**. Adequate **light penetration** to upper leaves is essential for **grain filling**.
- **Soil Requirements:** Prefers **well-aerated, well-drained soils**. Performs poorly on **heavy clay or sandy soils**, and is vulnerable to **waterlogging**.
- **Water Requirements:** It is a **water efficient crop**, needing **500–800 mm** of water to achieve **maximum grain yield**.
- **India’s Global Standing:** India is the **5th largest maize producer** (FAO, 2023) but only the **14th largest exporter** (UN-COMTRADE 2022). With yields under **4 four tonnes per hectare** (vs. global **6 t/ha**), it remains largely **self-sufficient**.
 - India has recently started **importing maize** mainly from **Myanmar and Ukraine**.
- **Major Producers:** The **top producing countries** are the **United States, China, and Brazil**.
 - The major maize-growing states in India are **Karnataka, Madhya Pradesh, and Bihar**.
- **Uses:** Maize is highly valued globally for its **multifarious uses** as **food, feed, fodder, and raw material** for industries.
 - Apart from food and feed, **14–15%** of India’s maize is used for **industrial purposes**.
 - It is a critical ingredient in **starch, oil, protein, alcoholic beverages, food sweeteners, pharmaceuticals, cosmetics, textiles, films, gum, packaging, and paper industries**.
 - **Indian Agricultural Research Institute (IARI)** has developed India’s first **“waxy” maize hybrid**, high in **amylopectin starch**, making it ideal for **ethanol production**.

Key WTO Provisions Enabling Import Restrictions by Countries		
Measure	Description	Key Condition
Sanitary and Phytosanitary (SPS) Measures	Countries can set their own health and safety standards for food, animals, and plants.	Must be science-based , not arbitrarily discriminatory , or a disguised trade restriction.
Agreement on Technical Barriers to Trade (TBT)	Covers technical regulations, standards, and conformity assessments (e.g., quality standards, labeling, product specifications).	Must not be more trade-restrictive than necessary to meet objectives like national security, consumer protection, or environmental safety .
Safeguard Measures	Allow temporary import restrictions if domestic industry is threatened by a surge in imports (unforeseen development).	Restrictions are temporary, usually require compensation, and do not require unfair trade.
Anti-Dumping	Extra duties on imports sold below normal value, causing domestic industry injury.	Dumping is proven through pricing analysis . A direct causal link exists between dumped imports and economic harm.
Countervailing Duties	Duties on subsidized imports causing domestic industry injury.	These duties are applied only after a thorough investigation confirms that a foreign export subsidy is causing "material injury" to the domestic industry of the importing country.

Related Keywords for Mains

- **Atmanirbhar Agriculture**
 - "Technology as a Plough": AI, drones, and precision farming powering harvests.
 - "From Lab to Land, Innovation Grows": Translating R&D into farmer-friendly solutions.
 - "Biotech Bharat, Bio-Secure Bharat": Genetic advances balancing productivity and safety.
- **Crop Resilience & Diversification**
 - "Climate-Smart Crops, Climate-Secure Nation": Adaptation through drought- and flood-tolerant varieties.
 - "Credit as Cultivation Catalyst": Timely finance enabling small farmers to thrive
- **Sustainability & Resource Efficiency**
 - "Water Saved is Wealth Gained": Efficient irrigation and conservation practices.
 - "Energy in Every Acre": Solar pumps, renewable inputs, and precision energy management.
 - "Fertilizers from the Farm, Not the Factory": Promoting bio-inputs and organic solutions.

India's Role in Amplifying the Voice of the Global South

India's External Affairs Minister convened a **High-Level Meeting of Like-Minded Global South Countries** in New York on the sidelines of the **80th session of the United Nations General Assembly**.

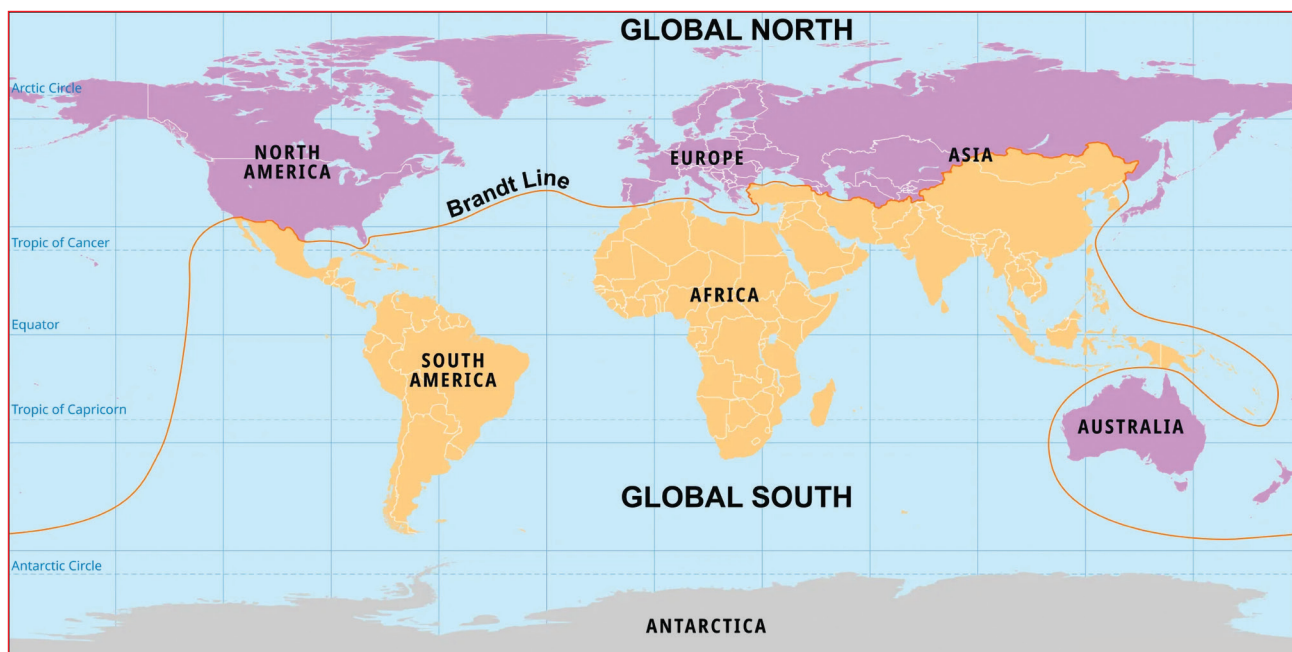
- The meeting sought to strengthen solidarity, push for **UN reforms**, and ensure global governance reflects developing countries' priorities, and pointed out that **multilateralism is weakening** just when the Global South needs it most.

Role of India in Championing the Voice of the Global South

- **Bridging Divides in Global Forums:** India acts as a mediator between North and South on climate change, trade, and security issues. Projects itself as a **"Vishwa Bandhu" (friend of the world)**, advocating inclusivity in global governance.
 - During its **G20 Presidency (2023)**, India ensured the **African Union's inclusion as a permanent member**, a landmark move for Southern representation.

- India's active participation in **BRICS, Quad**, and the **Voice of Global South Summit** reflects its commitment to global governance reform and strategic balance.

- **Multilateral Reform Advocacy:** India persistently demands reforms in global institutions like the **UNSC, World Bank, and IMF** to reflect the voices of developing countries.
- **Sustainability and Climate Leadership:** India is leading sustainable development efforts among developing nations. The **Mission LIFE** and the **ISA** and the **National Green Hydrogen Mission** reflect India's sustainable development leadership.
 - As the **3rd-largest producer of wind and solar energy**, India is supporting climate justice for vulnerable nations.
- **Digital and Technological Innovation:** India is a global leader in **Digital Public Infrastructure (DPI)**. Platforms like **Aadhaar and UPI** have inspired over **12 countries** to adopt similar systems, enhancing digital equity and inclusion in the Global South.



- **Humanitarian and Development Assistance:** India is emerging as a **first responder** in global crises through humanitarian missions such as **Operation Dost (Turkey)**, **Operation Karuna (Myanmar)**, and **Operation Kaveri (Sudan)**, reinforcing its role as a key development partner.
 - India has extended **Lines of Credit (LOCs) worth USD 12 billion to 42 African countries** as part of its development finance initiatives.
 - **Strategic Autonomy and Foreign Policy Balance:** India maintains a policy of strategic autonomy, engaging with both the West and Global South without aligning rigidly.
 - India played a key role in establishing the **Non-Alignment Movement (NAM)** to promote self-determination for developing nations.
 - Unlike China's aggressive diplomacy, **India offers a non-threatening, consultative leadership model.**
- Concerns of the Global South in the Current World Order**
- **Lack of Representation in Global Institutions:** **UNSC** still reflects **post-World War II power structures**. India, the world's most populous country and a major economy, **still lacks a permanent seat in the UNSC despite decades of advocacy**.
 - The undermining of the UN system by major powers (like the US) has left **smaller countries with no neutral forum to address regional conflicts or economic grievances**.
 - **International Monetary Fund (IMF) and World Bank governance** is dominated by developed countries, limiting the voice and influence of developing nations.
 - **Unfair Global Trade Rules:** **World Trade Organization (WTO) dispute resolution system** is paralysed, harming smaller economies who rely on rules-based trade.
 - Rising **protectionism and high tariffs** hurt export-dependent developing countries.
 - Environmental standards like the **European Union's Carbon Border Adjustment Mechanism (CBAM)** impose green tariffs that hurt exporters in countries like India and those in Africa, often favouring developed economies.
 - **Weakening of Multilateralism:** Multilateral institutions face legitimacy crises and funding shortages. **WHO was criticised during the pandemic for alleged bias and lack of early action, eroding trust**
 - WTO reforms have stalled due to lack of consensus between the Global North and South.
 - **Climate Injustice:** Global South contributes **least to climate change** but suffers the **most from its impacts** (e.g., floods, droughts, food insecurity).
 - **Climate finance** promised by Global North (e.g., USD 100 billion/year) remains delayed and insufficient.
 - The global south faces mounting **pressure to reduce emissions** without considering historical responsibility or development needs.
 - **Weaponisation of Interdependence:** **Supply chains, energy, and finance** are increasingly used as tools of geopolitical pressure.
 - Vulnerable countries face **tech restrictions, or sanctions**, even if unrelated to conflicts. For example, after **Russia's invasion of Ukraine, Africa and South**

Asia faced food and **fertilizer shortages** due to disrupted grain and urea exports.

- **Debt Crisis and Financial Vulnerability:** Many Global South countries like Sri Lanka are facing **high external debt**, worsened by Covid-19 and inflation.
- **Inequitable Access to Technology:** The digital divide is widening as **Artificial Intelligence, semiconductors, and green tech patents** remain concentrated in the US, EU, and China, leaving most Global South LDCs excluded from access and innovation.
- **Rise of Geopolitical Blocs and Strategic Exclusion:** Global South countries are increasingly **pressured to pick sides** in US-China or US-Russia rivalries. This undermines **strategic autonomy** and distracts from development goals.
- **Normative Double Standards:** The Global South criticizes the West for selective human rights advocacy, acting on **Ukraine while ignoring Gaza**, and Global South countries often face **external interference** in internal matters.

Complementary and Challenging Aspects of South-South Cooperation (SSC) to North-South Relations

■ Complementary Aspects

- **Bridging Development Gaps:** SSC helps address gaps in finance, technology, and capacity-building that **North-South aid often cannot cover**.
 - ❖ Initiatives like the **India-UN Development Partnership Fund** have extended demand-driven assistance to **Pacific Island nations and Africa**, offering flexible and context-specific support.
- **Promoting the SDGs through Local Solutions:** Unlike one-size-fits-all models, SSC aligns with the 2030 Agenda by providing context-specific and sustainable solutions to achieve the **Sustainable Development Goals (SDGs)**.
 - ❖ For instance, **Colombian strategies to fight hunger** and **Brazilian agricultural technology** have been successfully replicated in African contexts.
- **Triangular Cooperation as a Middle Ground:** SSC also works in **conjunction with developed nations through triangular cooperation**, where Northern partners support Southern-led initiatives.
 - ❖ This **creates synergy rather than competition**, as seen in FAO-led agricultural projects supported by China and implemented in Latin America.
- **Solidarity During Crises:** SSC has played a key role during global emergencies. **India's vaccine diplomacy during Covid-19** is an example of solidarity-driven responses that complemented (or filled the void left by) **North-South efforts**.

- **Strengthens Global Resilience:** By enabling flexible, peer-driven solutions, SSC helps countries confront overlapping crises such as climate change, pandemics, and debt distress.

Challenging Aspects

- **Geopolitical Realignment:** Growing South-South trade and investments (**China-Africa, India-ASEAN**) shift global economic gravity, contesting the centrality of the North.
 - The rise of new southern powers (**e.g., India, Brazil, South Africa**) is shifting the center of global governance and challenging Western-led alliances.
- **Critiquing Selective Conditionality:** Many Global South countries have raised concerns about the West's use of aid as a tool of influence, with strings attached related to governance or policy reform.
 - SSC presents a counter-model that is **non-conditional and sovereignty-respecting**.
- **Shifting Trade and Investment Patterns:** Nearly 60% of high-tech exports from developing countries are **traded within the Global South**, indicating growing intra-South economic interdependence beyond **traditional North-South flows**.
- **Redefining Development Leadership:** The rise of Southern powers like India in initiatives such as the **International Solar Alliance (ISA)** challenges the notion that development leadership and solutions must come from the Global North.

Measures to Strengthen the Global South's Voice with India's Leadership

- **Building Collective Platforms:** India can institutionalize platforms like the **Voice of the Global South Summit** as regular annual/biannual forums to ensure developing nations have a united voice in global governance debates.
- **Reforming Global Institutions:** India should lead efforts to push for **UNSC expansion, IMF and World Bank reforms**, ensuring the Global South has fair representation and voting power in decision-making.
- **Mobilizing Development Finance:** With support from partners like Japan and multilateral banks, India can champion a **Global South Development Fund** to finance infrastructure, digital transformation, and climate resilience projects across the South.
- **Driving South-South Trade and Connectivity:** India can work to reduce tariff barriers and promote **intra-South trade agreements**, expanding initiatives like the **Asia-Africa Growth Corridor (AAGC)** to counter global inequalities in trade flows.
- **Coordinated Peace and Security Role:** India can mobilize the Global South to play a greater role in **UN peacekeeping**,

conflict mediation, and inclusive peacebuilding, showcasing Southern contributions to global stability.

■ **Balancing Global Partnerships:**

- India's multi-alignment strategy can help the Global South engage constructively with the Global North, ensuring that Southern concerns on **trade, climate, and finance** are not sidelined in Western-dominated forums.

India-EFTA Free Trade Agreement

India's **Free Trade Agreement (FTA)** with the **EFTA bloc** - comprising **Switzerland, Norway, Iceland, and Liechtenstein**, has come into effect, **marking a significant step in strengthening trade and investment ties**. The agreement reflects India's growing role in global value chains and its strategy to expand market access while attracting foreign investment.

India-EFTA FTA

- **About:** The **India-EFTA FTA (Trade and Economic Partnership Agreement (TEPA))** was finalized in March 2024, and came into effect on **1st October 2025**.
 - It strengthens India's global trade ties, complementing recent FTAs with **UAE, Australia, and the UK**.
- **Objectives:**
 - **Enhanced Market Access:** EFTA has given **100% market access for India's industrial and non-agricultural products**. Tariff concessions provided on processed agricultural products.

- **Investment & Jobs:** EFTA nations will bring in a binding investment commitment of **USD 100 billion over 15 years**. This investment is expected to generate 1 million direct jobs in India.
- **Dedicated Institutional Mechanism for Trade Facilitation:** A **dedicated EFTA Desk, operational since February 2025**, acts as a single-window investment facilitation mechanism. Supports EFTA businesses in investing, expanding, and operating in India.

Measures India can Adopt to Strengthen its Position in Global Trade

- **Strengthen Export Competitiveness:** Focus on **quality, branding, and technology upgrades** in manufacturing and agriculture.
- **Diversify Trade Partners:** Expand FTAs to cover **emerging markets in Africa, Latin America, and Asia-Pacific**.
- **Support MSMEs and Startups:** Simplify access to credit, logistics, and e-commerce platforms for export-oriented small enterprises.
- **Improve Infrastructure:** Expand **ports, logistics hubs, freight corridors, and cold chain facilities** to reduce transaction costs.
- **Enhance Compliance and Standards:** Facilitate **capacity building** for exporters to meet international quality, labor, and environmental norms.
- **Leverage Digital Trade Platforms:** Promote **virtual trade shows, e-marketplaces, and online FTA utilization** for wider reach.

Free Trade Agreements

- **About: FTAs, or Free Trade Agreements**, are pacts between two or more countries to reduce or eliminate barriers to trade, such as **tariffs (taxes on imports/exports) and quotas, on goods and services**.
 - India has Free Trade Agreements (FTAs) with countries and groups like **Japan, Australia, the UAE, Mauritius, the European Free Trade Association (EFTA), Singapore and Sri Lanka**. Also, India-EU FTA is currently in advanced negotiations.
- **India's Gains from Free Trade Agreements**
 - **Market Access:** Expand exports by reducing tariffs/non-tariff barriers (e.g., **India-UAE CEPA** gave duty-free access to **90% of exports**; exports grew 12% in the first year of CEPA implementation).
 - **Investment Boost:** Attract stable FDI (**India-Australia ECTA** led to **25% surge in FDI inflows**).
 - **Agriculture Gains:** New export markets for farmers (**India-Mauritius CECPA** increased agri exports like sugar & tea).
 - **Technology Transfer:** Access advanced tech (**India-Australia ECTA** in renewables aiding energy transition).
 - **SME Support:** Wider global value chain integration (**India-Singapore CECA** benefits SMEs in IT & engineering).
 - **Regulatory Alignment:** Harmonization of standards (**India-EFTA TEPA** aligns product certifications, cuts compliance costs).
- **Concerns with India's FTAs:**
 - **Trade Deficits:** Rising imports vs stagnant exports (**India-ASEAN FTA** has led to a significant rise in imports to \$44 billion in FY23).
 - **Limited Developed Market Access:** Non-tariff barriers restrict entry (e.g., Delay in trade agreement with EU due to IPR/data issues).
 - **Small Farmers & MSMEs at Risk:** Competition from cheap imports hits vulnerable sectors (e.g., **rubber farmers under ASEAN FTA**).
 - **Labor & Environmental Clauses:** Binding conditions like EU's **Carbon Border Adjustment Mechanism** may hurt Indian exports.
 - **Weak Dispute Resolution:** Slow/unbalanced mechanisms (e.g., India-ASEAN disputes on palm oil, machinery tariffs).

India Calls for UN Reforms at 80th UNGA Session

India's External Affairs Minister addressed the **80th session of the United Nations General Assembly (UNGA)** in New York, highlighting the **need for UN reform** and India's readiness to assume greater responsibilities in driving UN reforms.

Need for UN Reforms

- **Gridlock in Decision-Making:** The UN often faces **paralysis in decision-making due to conflicts, limited resources, and terrorism**.
 - The veto power held by the five **permanent members (P5)** allows a single nation to block resolutions, even if the majority supports them, as seen with **Russia in Ukraine** and the **US on Israel-related resolutions**.
- **Outdated and Unrepresentative:** The UN Security Council reflects the geopolitical realities of **1945**, not the 21st century.
 - Rising powers like India, Brazil, Germany, and Japan lack permanent membership, while the Global South remains underrepresented, limiting the **UN's legitimacy**.
 - The UN has struggled to **prevent or resolve large-scale conflicts** due to internal divisions and weak peacekeeping mandates. Historical failures in **Bosnia and Rwanda, and inaction in Syria, Sudan, and Myanmar** highlight systemic shortcomings.
- **Financial Dependence:** Heavy reliance on a few major donors, especially the US, creates leverage for influencing UN policies and operations, compromising impartiality and global trust.
- **Administrative Issues:** The UN's sprawling bureaucracy **slows responses to crises and suffers from corruption, misuse of funds, and misconduct**.
 - For instance, the **United Nations Development Programme (UNDP)** reported 434 new investigations, including procurement fraud and sexual misconduct, undermining credibility.
- **Erosion of Sovereignty:** Some nations perceive the UN as a **threat to sovereignty, arguing that resolutions on climate change, human rights, or immigration** can override national interests.
 - This criticism challenges the UN's authority and global acceptance.
- **Competing Global and Regional Institutions:** The rise of organizations like the **G20, BRICS, and African Union** provides alternative, often more agile platforms for international cooperation, bypassing the UN and further highlighting the need for reform.

Role of India in Driving UN Reforms

- **Security Council Expansion:** As a member of the **G4 group (India, Brazil, Germany, Japan)**, India advocates increasing

UNSC membership, with six new permanent seats for Africa, Asia-Pacific, Latin America, and Western Europe.

- This addresses the **anachronistic P5 structure** and aligns representation with 21st-century geopolitics.
- **Advocating for the Global South:** India, as a **leader of developing nations**, can push for reforms prioritizing the interests of the Global South by highlighting key issues like **sustainable development, climate justice, and equitable economic growth**.
- **Promoting Multilateralism:** India can act as a **voice of reason** in an era of great-power competition, **promoting diplomacy over conflict**.
 - India's **neutral stance**, favoring **negotiation over military action**, underscores its **role in peaceful conflict resolution**. With a legacy in **UN peacekeeping**, India strengthens its claim for a greater voice in UN decision-making.
- **Strengthening Counter-Terrorism Frameworks:** Having faced terrorism firsthand, India can lead efforts to **strengthen the UN counter-terrorism framework**, advocate for a **comprehensive international convention on terrorism**, and ensure **accountability for states sponsoring or harboring terrorist groups**.
- **Leveraging Historical Credibility and Contributions:** India's track record in **decolonization, human rights, anti-apartheid efforts, peacekeeping, and international cooperation** adds legitimacy to its leadership role in UN reforms.
- **Showcasing Global Leadership and Soft Power:** Initiatives like the **International Day of Yoga**, adopted with support from **177 member states**, reinforce India's capacity to **build consensus and promote multilateral cooperation**.

Steps to Ensure Effective and Inclusive Reforms at the UN

- **Text-Based Negotiations:** Move from broad "dialogue" to **text-based negotiations** under the **Intergovernmental Negotiations (IGN)** process, with clear deadlines and negotiation rounds. Prevent stalling via procedural foot-dragging.
- **Reform or Limit Use of Veto:** Introduce binding restrictions on veto use in situations involving genocide, war crimes, or crimes against humanity.
 - Mandate that **veto exemptions require supermajority or referral to the General Assembly**.
- **Link Membership with Contributions & Burden Sharing:** Reform assessment scales and privileges to ensure countries contributing significantly to **UN peacekeeping, humanitarian aid, or development** get **proportional representation**.

- Uphold the “capacity to pay” principle while rewarding credible contributors with greater institutional voice.
- **Improve Accountability, Transparency & Decision-Making Efficiency:** Revamp voting rules in key UN bodies to prevent procedural deadlock.
 - Publish performance reviews, audits, and decision-impact assessments for major programs.
- **Institutionalize “Voice of the Global South” via New Mechanisms:** Create permanent forums or caucuses in UN organs for Global South coordination, so they can negotiate as blocs.
 - Strengthen coalition platforms like the G4 or African Union in UN decision-making.
- **Leverage Coalitions to Build Momentum:** Use forums outside the UN (G20, BRICS, NAM, IBSA) to generate consensus pressure for UN reform. Mobilise support from middle powers and small states to isolate veto-resistance.
- **Guarantee Safeguards Against Dominance & Free Riding:** Include “clawback” or sunset clauses for new privileges if misuse or dominance is observed.
 - Ensure reform proposals are anchored in the UN Charter so they can’t be arbitrarily reversed.
- **Continuous Review & Adaptation Mechanisms:** Establish periodic review (say every 10 years) of governance structures, with mandated adjustments.
 - Form a permanent “UN Reform Commission” with rotating membership to propose updates in light of changing geopolitics.

India-Qatar Trade and Economic Cooperation

The Union Minister of Commerce and Industry visited Qatar to co-chair the **India-Qatar Joint Commission on Economic and Commercial Cooperation**, focusing on boosting bilateral trade and exploring new economic opportunities.

Key Outcomes of the India-Qatar Joint Commission Meeting

- **Ambitious Trade Target:** Both countries recognized the **untapped potential** and emphasised the goal of **doubling bilateral trade by 2030**. Current trade stands at approximately **USD 14 billion**.
 - Both nations reaffirmed their commitment to pursuing an ambitious **India-Qatar Comprehensive Economic Partnership Agreement (CEPA)**, a free-trade pact.
- **Digital Integration:** A key milestone was the launch of **India’s Unified Payments Interface (UPI)** in Qatar, facilitating **seamless digital payments** for the **Indian diaspora** and **local consumers**.
- **Sectors Identified for Growth:** The ministers highlighted sectors to boost **Indian exports and collaborations**:

- **Traditional:** Pharmaceuticals, textiles, gems & jewellery
- **Manufacturing & Tech:** Electronics, automobiles, processed foods
- **Future-Focused:** IT, emerging high-tech industries, solar energy.
- **Energy Security Reinforced:** India appreciated **Qatar’s long-term LNG supply agreement of 7.5 million tonnes per year from 2028**, a cornerstone of the energy partnership.



Partnership between India and Qatar Across Various Sectors

- **Trade Ties:** India-Qatar trade reached **USD 14.15 billion in FY25**, with a **USD 10.78 billion trade deficit** for India driven mainly by **petroleum imports (89%)**.
 - India ranks among **Qatar’s top three export destinations** and **top three import sources**.
- **Investment:** Over **20,000 Indian companies** operate in Qatar (wholly owned and joint ventures), while **Qatar’s FDI in India** has grown to **about USD 1.5 billion**.
- **Energy Supply:** Qatar is India’s **largest LNG and LPG supplier** (26% of India’s LPG imports). In **FY 2024–25**, hydrocarbon trade made up **78.7% of total bilateral trade**, with the **25-year LNG supply pact** starting from 2028.
- **Defense Relations:** The **India-Qatar Defence Cooperation Agreement**, signed in 2008 and extended in 2018, covers training, naval visits, **DIMDEX** participation, and the bilateral maritime exercise **Za’ir-Al-Bahr (Roar of the Sea)**.
- **Cultural Relations:** Regular cultural exchanges occur under the **2012 Cultural Cooperation Agreement**. 2019 was marked as the **India-Qatar Year of Culture**, India was a **partner for Qatar-MENASA 2022**, and the **‘Passage to India’ festival** was held in 2024.

- Over **830,000 Indians in Qatar** reflect the **strong people-to-people ties** between the two nations.

India's Significance for Qatar

- **Guaranteed Energy Market:** India, as a **large and reliable LNG buyer**, gives Qatar a **stable revenue stream** supporting its **economy and Qatar National Vision 2030**.
- **Source of Essential Goods:** India supplies Qatar with **food, pharmaceuticals, and manufactured goods**, making it vital for **Qatar's supply chain and food security**.
- **Non-Energy Economic Diversification:** India offers Qatar investment opportunities beyond hydrocarbons in **fintech, renewable energy, and digital infrastructure**, while **space technology (ISRO) and affordable healthcare** provide new collaboration avenues.
- **Logistics & Project Execution:** Indian companies lead in **engineering, procurement, and construction (EPC)**, executing mega-projects like the **FIFA World Cup 2022**, while the large Indian workforce supports Qatar's **healthcare, education, hospitality, and aviation sectors**.
- **Partner in Knowledge & Digital Economy:** India's **IT and software expertise** drives Qatar's **digital transformation**, while **education and skill development** offer models for Qatar's **knowledge-based economy**.

Qatar's Significance for India

- **Energy Security & Price Stability:** Qatar, a **price-setter in the LNG market**, offers **long-term contracts** that shield India from price volatility and support its **strategic gas reserves and clean energy transition**.
- **Remittances:** With over **800,000 Indians**, Qatar hosts a **large diaspora** that provides **billions in remittances**, supporting **India's foreign exchange and family livelihoods**.
- **Strategic Investment Source:** The **Qatar Investment Authority (QIA, Qatar's sovereign wealth fund)** has invested **billions in India** across **infrastructure, technology, and real estate**, acting as a key **patient capital** source for projects like the **National Infrastructure Pipeline (NIP)**.
- **Strategic Depth in West Asia:** Qatar's **mediator role** (e.g., in Afghanistan) and the **Al-Udeid Air Base** with its **US ties** provide India a **strategic diplomatic advantage** in the region.

Resetting India-Canada Ties

India and Canada have agreed on a series of measures to **restore bilateral relations**, as announced in a **joint statement** titled '**Renewing Momentum Towards a Stronger Partnership**' by their foreign ministers.

- **Trade & Economic Cooperation:** **Canada-India CEO Forum** resumes in 2026. Ministerial talks will focus on trade & investment, clean tech, infrastructure, etc.



Highlights of India-Canada Bilateral Relations

- **Economic & Trade Partnership:** Bilateral trade in goods and services exceeded **26 billion Canadian dollars (CAD)** in 2023. Significant investments are highlighted by over **CAD 75 billion** from **Canadian pension funds** and a presence of over **600 Canadian companies** in India.
- **Energy & Civil Nuclear Cooperation:** Under the **Nuclear Cooperation Agreement (2010)**, Canada is a key **uranium supplier** to India. A separate **ministerial-level Energy Dialogue** covers oil, gas, renewables, electricity, and clean technologies.
- **Security & Legal Frameworks:** Security collaboration is based on a **Joint Working Group (JWG) on Counter Terrorism (1997)** and a **Framework for Cooperation on Countering Terrorism (2018)**, while legal cooperation is strengthened by an **Extradition Treaty (1987)** and a **Mutual Legal Assistance Treaty (1994)**.
- **Science & Technology:** **ISRO** and the **Canadian Space Agency (CSA)** have **MoUs**, and **ISRO's commercial arm, ANTRIX**, has launched several **Canadian nanosatellites**.
- **People-to-People & Educational Links:** Canada hosts one of the largest Indian diasporas abroad, with nearly **1.8 million people of Indian origin** contributing significantly to **society and economy**. India is also a top source of **international students** for Canada, with about **427,000 Indian students** studying there.
- **Clean Energy & Climate Action:** **Critical Minerals Dialogue** (begin in March 2026) and **Canada-India Ministerial Energy Dialogue (CIMED)** will be revived to focus on **green hydrogen, biofuels, etc.**
- **Science, Tech & Digital Ties:** Restart of **Joint Science and Technology Cooperation Committee (JSTCC)** and **AI collaboration**, with Canada joining **India's AI Impact Summit 2026**.

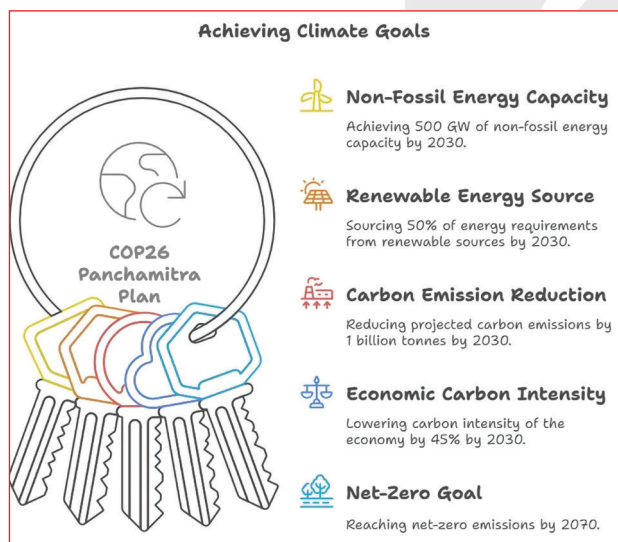
- **People-to-People Links:** Collaboration in **higher education** (AI, cybersecurity), revitalizing **Joint Working Group on Higher Education** to expand academic networks.

Challenges in India-Canada Relations	Suggestions
■ Khalistan Issue: India accuses Canada of allowing Khalistani separatists to operate, inciting violence & funding destabilizing activities ■ Trade & Economic Disruptions: CEPA negotiations paused since 2023, creating an unpredictable environment and discouraging investments. ■ Strategic Misalignment: India leads in countering Chinese influence in the Indo-Pacific and is part of the Quad, while Canada's approach to China is inconsistent. Canada aligns with the Five Eyes, while India-US relations are complex, particularly on Russia. ■ Divergence in Global Governance: Canada emphasizes human rights and international law, while India prioritizes strategic autonomy, national development, and reformed multilateralism.	■ Diplomatic Recalibration: Establish a Bilateral Security and Sovereignty Dialogue at the NSA level. Create a 2+2 Dialogue Mechanism for Indo-Pacific security, counter-terrorism, and maritime cooperation. ■ Economic Integration: Revive CEPA with Early Harvest Agreements in clean tech, agri-tech, and digital services. ■ Technological Cooperation: Fast-track Critical Minerals Dialogue and energy talks, focusing on Green Hydrogen and electric mobility; establish India-Canada Innovation Bridge. ■ Strengthening Human Capital: Promote Canadian university campuses in India under new Foreign Educational Institutions (FEI) regulations, 2023; engage Indian diaspora through cultural & educational collaborations.

India-Australia Clean Energy Partnership

Australia is engaging with India at a crucial time as both nations aim to achieve **ambitious renewable energy** goals while **reducing reliance on China** for **critical materials** amid global supply chain vulnerabilities.

NOTE: As of March 2025, India's renewable energy capacity reached 220.10 GW, up from 198.75 GW in the previous year.



Need for Scaling Up the Australia-India Clean Energy Partnership

- **Climate Change in the Indo-Pacific Region:** The Indo-Pacific faces grave **climate risks**, averaging **10 climate disasters per month (1970–2022)**, with up to **89 million displaced** and **80% of the population affected by 2050**.
- **Overdependence on China:** China dominates **critical materials**, refining over **90% of rare earth elements** and producing **80% of global solar modules**.

- India relies on **imports of rare earth magnets** and **battery materials** for EVs and **wind power**, while **Australia produces lithium, cobalt, and rare earths** but lacks **refining** and **downstream manufacturing** capacity.
- **Renewable Energy Partnership (REP):**
 - Launched in **2024**, **REP** outlines cooperation across **eight areas—solar PV technology, green hydrogen, energy storage, solar supply chains, circular economy in renewables, two-way investment, capacity building, and other shared priorities**.
 - It also introduces a **Track 1.5 Dialogue** to connect **policymakers, industry, and research institutions** for practical collaboration.
- **Clean Energy Supply Chain:**
 - **Australia** provides **critical minerals** and **regulatory stability** for co-investment in **refining and processing**, while **India** offers **scale, a skilled workforce, and market demand** for **solar, storage, and hydrogen** backed by **Skill India** and **Production Linked Initiative (PLI)** schemes.
 - Together, they can create a **resilient, regionally anchored clean energy ecosystem**.
- **Shared Climate Ambitions:**
 - **India** targets **500 GW of non-fossil capacity by 2030**, including **280 GW from solar**, while **Australia** aims for a **62–70% emission reduction by 2035**, aligned with its **net-zero goals**.

India's Strategic Global Partnerships for Clean Energy Transition

- India-EU Clean Energy and Climate Partnership (CECP) (2016)
- US-India Strategic Clean Energy Partnership (SCEP)
- Green Fuels Alliance India (GFAI) with Denmark
- Global Biofuels Alliance (2023)

India-Middle East–Europe Economic Corridor

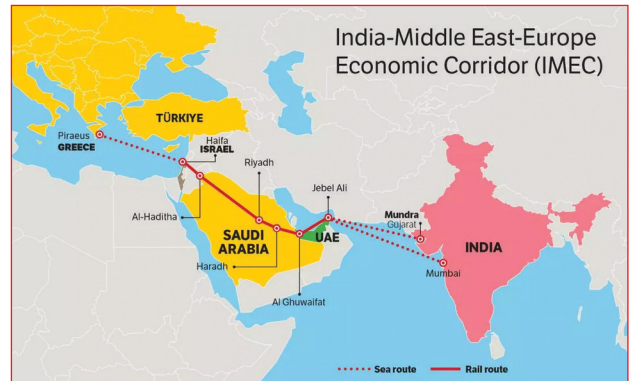
The **India–Middle East–Europe Economic Corridor (IMEC)**, unveiled at the **2023 G20 Summit**, aims to link India with Europe through the Middle East.

- However, ongoing conflicts in **West Asia** and emerging **Arctic routes** pose serious challenges to its implementation and strategic viability.

India-Middle East–Europe Economic Corridor

- **About:** IMEC is a **strategic multi-modal connectivity initiative** launched through a **MoU at the G20 Summit 2023, New Delhi**. It has two corridor segments **Eastern Corridor** (connects India to the Gulf region) and **Northern Corridor** (connects the Gulf region to Europe).

- IMEC signatories include **India, US, Saudi Arabia, UAE, France, Germany, Italy, and the EU**. It is part of the **G7's Partnership for Global Infrastructure and Investment (PGII, 2021)**.
- The IMEC emerged in 2023 amid favourable geopolitics, supported by the **Abraham Accords** and improving **India-UAE, Saudi Arabia, and US ties**. It aims to link Israel's Haifa port with Jordanian railways and Gulf ports.
- **Purpose:** IMEC aims to develop an **integrated network of ports, railways, roads, sea lines, energy pipelines, and digital infrastructure (undersea digital cables)** to enhance trade and economic cooperation between **India, the Middle East, and Europe**.
 - IMEC is designed as a **transparent, sustainable, and debt-free alternative to China's Belt and Road Initiative (BRI)**, ensuring infrastructure development without compromising **national sovereignty**.
- **Economic & Strategic Benefits for India:** IMEC reduces logistics costs by **~30%** and transport time by **~40%** versus the **Suez Canal route**, boosting export competitiveness.
 - For India, IMEC is a strategic opportunity to diversify trade routes, reducing reliance on chokepoints like the **Suez Canal**. The corridor enhances access to European markets via the Mediterranean, providing an alternative to China's BRI.
 - ❖ With the **EU as one of India's largest trading partners (USD 136 billion in 2024-25)**, stronger connectivity could boost export competitiveness.
 - IMEC also aligns with **India's Act West policy**, deepening engagement with the Middle East for energy security, remittances, and diaspora links, while countering Pakistan's regional strategic influence.
 - It aligns with **India's One Sun One World One Grid (OSOWOG)** initiative to harness **solar and green hydrogen energy** from the Middle East and supports India's transition to a **low-carbon economy**.



Challenges to the India–Middle East–Europe Economic Corridor (IMEC)

- **Geopolitical Instability in West Asia:** The **Hamas attack in October 2025** and subsequent Israeli military actions have **worsened regional security**, especially between Israel and Arab states, threatening the core IMEC route.
 - Deterioration in Israel's ties with countries like **Saudi Arabia and Jordan** could stall **railway and energy infrastructure projects** planned through their territories.
 - West Asia's **volatile political climate** makes long-term infrastructure investments risky and uncertain.
- **Shifting Trade Dynamics Due to Climate Change:** **Arctic sea routes**, now more accessible due to climate change, offer **shorter, cost-effective shipping routes** between Asia and Europe, reducing IMEC's competitive edge.
 - Countries like the **US, Russia, China, and northern Europe** stand to benefit more from Arctic connectivity than IMEC signatories.
 - Mediterranean countries like **Italy and France** view IMEC as a counterweight to potential economic marginalization due to Arctic routes.
- **Red Sea Disruptions and Maritime Insecurity:** Frequent attacks by **Houthi rebels in the Red Sea** have disrupted shipping, leading to detours via the **Cape of Good Hope**, increasing transport time and cost.
 - IMEC, depending on maritime segments near conflict zones, faces **exposure to similar disruptions**.
- **Exclusion of Regional Actors and Strategic Competition:** Countries like **Turkey, Egypt, or Iran** are not part of IMEC, despite their strategic geography, potentially creating **rival or parallel corridors**.
 - **Pakistan's growing ties with Arab states**, especially **Saudi Arabia**, could be leveraged to counter IMEC and **undermine India's influence** in the region.
- **Implementation and Investment Challenges:** Building high-speed rail, energy pipelines, and digital infrastructure across multiple sovereign territories requires **enormous financial and technical resources**.

- IMEC aims to mobilize **USD 600 billion by 2027**, but lacks a **definitive funding roadmap** and **cost-sharing plan** among stakeholders.
- Large-scale infrastructure requires **long-term investments (USD 3–8 billion per project)**, which remains uncertain amid global economic slowdown.
- **Uncertain Peace Prospects in the Gaza Conflict:** Even as peace initiatives are proposed, **there is no guarantee of long-term stability** in Gaza or the broader Israel-Palestine region.
 - Any future flare-ups could derail ongoing or planned segments of the corridor, especially in **Israel and Jordan**.

Measures to Ensure Successful Implementation of the IMEC

- **Foster Multilateral Cooperation and Governance:** India should take the lead to establish an **IMEC Secretariat** for coordination, dispute resolution, and monitoring, while **promoting policy harmonization and regulatory alignment** among member countries.
- **Strengthen Geopolitical Engagement:** India should maintain active diplomatic outreach with all member countries and **regional players**.
 - Facilitate conflict resolution to address **West Asian instability** (e.g., Gaza conflict, Saudi-Iran rivalry).
 - Promote inclusion of **Turkey, Iran, Qatar, and Egypt**, and engage additional **Saudi and Egyptian ports** to expand IMEC's reach, strengthen India-Arab economic ties, and counter Pakistan's regional influence.
- **Secure Investment Commitments:** Develop a **clear financial roadmap** and **cost-sharing mechanisms** among member nations.
 - Leverage **Public-Private Partnerships (PPPs)**, **green bonds**, and **sustainable finance** to ease budget pressure.
- **Mitigate Trade and Security Risks:** Diversify routes and build **contingency plans** against maritime disruptions. Strengthen regional security cooperation via **Indian Ocean Rim Association (IORA)** and **Gulf Cooperation Council (GCC)** to counter piracy, terrorism, and cyber threats.
- **Promote Technological Integration:** India can lead digital connectivity initiatives like **Unified Payments Interface (UPI)-based payments**, **undersea data cables**, and **5G infrastructure**. And Support **e-commerce, fintech, and smart city projects** while reducing the **digital divide** along IMEC nodes.

India-Mongolia Strategic Partnership

The **President of Mongolia** undertook a **State Visit to India**, commemorating the **70th anniversary of diplomatic relations** and the **10th anniversary of the Strategic Partnership** between the two nations.

Key Outcomes of the President of Mongolia Visit to India

- **Defence & Security Cooperation:** India launched a **capacity-building programme** for Mongolia's border security forces and strengthened **defence ties** via **training programmes** and a **Defence Attache** at the Indian Embassy.
- **Energy Security:** The visit confirmed the **USD 1.7 billion Oil Refinery Project** in Mongolia, funded by an **Indian Line of Credit**, marking India's largest **global development partnership** and pivotal for Mongolia's energy security.
- **Economic Partnership:** Cooperation in **critical minerals, rare earths elements, and coking coal** was highlighted as a priority, with India considering **logistical routes** through **Vladivostok (Russia)** and **Tianjin port (China)** for importing Mongolian coking coal.
- **Cultural Connectivity:** India will send the **holy relics** of Lord Buddha's disciples, **Sariputra** and **Maudgalyayana**, to Mongolia, and an **MoU** was signed between the **Ladakh Autonomous Hill Development Council** and **Arkhangai Province** to boost cultural ties.
 - India will also send a **Sanskrit teacher** to the **Gandan Monastery** (Mongolia) and launch a project to **digitize one million ancient Mongolian manuscripts**.
- **Development Cooperation & Skill Development:** Both sides signed **pacts on cultural exchange, immigration cooperation, disaster management, and Bogd Khan Palace (Mongolia) renovation**, while India's **developmental role** was highlighted via the **Atal Bihari Vajpayee Centre of Excellence for IT** and the **India-Mongolia Friendship School**.



Status of India-Mongolia Relations

- **Historical Relations:** Historical conjectures suggest migration from the **Kangra kingdom** 4,300 years ago under **Mangaldev**, though evidence is lacking.
 - During the **Hunnu State** (3rd century BC in Mongolia) and the **Great Mongol Empire**, **Buddhist monks** and **Indian traders** visited Mongolia, and in 552 BC, **Lama Narendrayash** from **Udayana (Northern India)** visited **Nirun state (Mongolia)**.

- **Political Relations:** Diplomatic relations between India and Mongolia were established in 1955, making India the first country outside the **Socialist bloc** to do so. India also supported Mongolia's membership in the **United Nations (UN)** and **Non-Aligned Movement (NAM)**.
- **Trade Relations:** In 2024, India-Mongolia bilateral trade stood at **USD 111 million**. India's **exports** to Mongolia include **medicines, mining machinery, and auto parts**, while **imports** consist mainly of **raw cashmere wool**.
- **Defence Cooperation:** The joint India-Mongolia exercise **Nomadic Elephant** is held annually, and India also participates in the **week-long Khaan Quest** training exercise hosted by Mongolia.
- **Humanitarian Assistances:** India provided **humanitarian assistance** worth **USD 20,000** (beds, bedrolls, toys) to children of herders in **Sukhbaatar Aimag** affected by **Zud (harsh winter)**, and **USD 50,000** to flood-affected provinces **Bayan Ulgii, Arhangai, and Huvsgul**.
- **Cultural Relations:** The India-Mongolia Cultural Agreement of 1961 governs the **Cultural Exchange Programme (CEP)**, facilitating **educational cooperation** through **scholarships, expert exchanges, and conference participation**.
 - A pan-Mongolia Indian dance competition, **Melody of Ganga**, is being organized for school children.

Factors Impeding a Stronger India–Mongolia Partnership

- **Geographical & Logistical Chokepoint:** Mongolia's **landlocked status** creates a fundamental **logistical barrier** for **bilateral trade and investment**.
 - All movement of **goods**, including crucial **mineral exports** for India and **Line of Credit (LoC) imports** for Mongolia's **oil refinery**, must be routed through either **Russia or China**, driving up **costs** and reducing India's **trade competitiveness**.
- **Disparity in Economic Scale and Trade Volume:** Despite the **Strategic Partnership** since 2015, actual **bilateral trade** remains **minuscule** (around **USD 110 million** in 2024), especially compared with **Mongolia's economic dependence on China**.
- **Geopolitical Vulnerability to Neighbors:** Mongolia's "**Third Neighbour**" policy relies on India as a **democratic and spiritual partner** to balance **China and Russia**.
 - However, any aggressive move by India to deepen this relationship could be perceived as **geopolitical provocation** by its **powerful neighbors**, complicating **cooperation** and potentially creating **instability** for Mongolia.
- **Project Implementation and Political Volatility:** The timeline and successful execution of India's **flagship projects**, particularly the **USD 1.7 billion oil refinery**

(expected 2028), are susceptible to **delays, cost overruns, and local political instability** in **Mongolia**. Slow implementation or **policy changes** can invite **skepticism and criticism**, preventing the deepening of **trust** needed to translate **MoUs** into lasting **strategic gains**.

Measures that India can Adopt to Deepen its Ties with Mongolia

- **Critical Minerals Partnership:** Invest in **coal gasification projects** and **joint ventures** to extract Mongolia's rare earth elements (e.g., **copper, uranium**), reducing India's **dependency on China** for **critical minerals**.
- **Strategic Connectivity:** Launch **direct flights** (e.g., **Delhi-Ulaanbaatar**) and collaborate on **digital infrastructure** (e.g., **India Stack for e-governance**) to strengthen Mongolia's "**Third Neighbor**" policy.
- **Defense & Security Cooperation:** Expand **exercises** on **peacekeeping, counterterrorism, and cold-desert warfare**, leveraging India's **high-altitude expertise**.
- **Promote Cultural Links:** Fund restoration of **Buddhist heritage sites** (e.g., **Gandan Monastery**) and promote **scholarly exchanges** through **Nalanda University**, while organizing **joint cultural events** and **cinema co-productions** to leverage Mongolia's interest in **Indian media**.
- **Agriculture & Food Security:** Share **Indian expertise** in **cooperative dairy models** (e.g., **Amul**) and **modernize meat export infrastructure**, while providing **drought-resistant crop technologies** to combat **desertification**.

Engagement Without Recognition: India's Taliban Policy

Afghanistan's Foreign Minister visited New Delhi, marking the highest-level Taliban visit since 2021, prompting India to upgrade its **Kabul technical mission to a full embassy**, without formally recognizing the Taliban government, maintaining its policy of "**engagement without recognition**."

India's "Engagement Without Recognition" Approach to the Taliban Government

- **Engagement Without Recognition:** Recognising a government (*de jure*) and engaging with a **regime (de facto)** are separate political acts governed by international law.
 - India does not accept the **Taliban's de jure legitimacy** but maintains functional diplomatic channels through its embassy in Kabul.
- **Purpose of Engagement:** To coordinate humanitarian aid, development projects, and political dialogue while safeguarding India's strategic and security interests.
- **International Law Basis:** This approach aligns with **Vienna Conventions on Diplomatic Relations (1961)** and **Consular Relations (1963)**, which allow embassies to function without formal recognition of the host government.

- **Precedents:** India has used similar models for **Taiwan and the Myanmar junta**, engaging without recognising their governments formally.

Global Approach Towards the Taliban Government in Afghanistan

- Recognition of governments is a **political act** separate from operating an embassy.
- In 2024, the UN rejected Afghanistan's claim to its seat for the fourth consecutive year. The Taliban government must meet **UN requirements on forming an inclusive government, dismantling terrorist groups, and respecting human rights**, particularly women's rights, but it has failed on all three counts.
- Countries like **Russia, China, UAE, and Uzbekistan** have engaged the Taliban through mixed approaches with some granting formal recognition, others adopting engagement-without-recognition.

Reasons for India's Engagement with Taliban Despite Non-recognition

- **Positive Stance Towards India:** Taliban have maintained relatively good relations, emphasizing that **Kashmir is a bilateral matter with Pakistan**.
- **Strategic First-Mover Advantage:** Early engagement would enhance India's diplomatic influence before countries like **China or Pakistan** follow **Russia's lead**.
- **Balancing Regional Powers:** Engagement helps counter **China-Pakistan influence in Kabul** and strengthens India's strategic footprint.
 - India's approach underscores commitment to **Afghanistan's sovereignty** while limiting Pakistan's regional leverage.
- **Protecting Assets:** India has invested over **USD 3 billion** in Afghanistan, and engagement ensures the safety of its development projects.

Significance of India-Afghanistan Relations

- **Security and Counterterrorism:** The Taliban's assurances to prevent Afghanistan from being used as a base for anti-India groups, including condemnation of terror attacks, enhances India's confidence in Afghanistan as a strategic partner.
 - Earlier, Taliban assisted India in negotiating with the hijackers of **Indian Airlines Flight 814 in 1999**, facilitating the safe return of the hostages.
- **Development and Reconstruction:** India in Afghanistan has invested over **USD 3 billion** in humanitarian aid and infrastructure, including the **Salma Dam, Zaranj-Delaram highway, Kabul's Parliament building, hospitals, and power substations**.
 - Humanitarian initiatives during droughts and Covid-19 further demonstrate India's soft power commitment and long-term engagement.

- **Economic Engagement:** Afghanistan's mineral wealth, valued at **USD 1-3 trillion**, presents significant opportunities for India in mining and trade.

- Historical support for the **Northern Alliance** and India's role as a major development partner highlight its sustained strategic interest in the region.

- **Connectivity and Regional Trade:** India focuses on key connectivity projects like the **Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline** and **Chabahar Port (Iran-Afghanistan-India corridor)**, facilitating trade, regional integration, and bypassing Pakistan.

- Strengthening these links enhances India's access to **Central Asia** and reduces Pakistan's strategic leverage.



Measures to Strengthen India's Ties with Afghanistan

- **Pragmatic Diplomatic Engagement:** Maintain full embassy and regular exchanges without immediate political recognition; continue **humanitarian aid to balance strategic necessity** with moral responsibility.
- **Counter-terrorism Cooperation:** Institutionalise **intelligence sharing, joint investigations**, capacity building for Afghan security forces, and anti-narcotics collaboration in **Golden Crescent regions**.
- **Economic Connectivity & Geoeconomic Options:** Boost trade and investment via **Chabahar Port, India-Afghanistan Air Freight Corridor**, and secure resource-sector partnerships like **Hajigak**.
- **Multilateral & Regional Cooperation:** Leverage **Heart of Asia, Shanghai Cooperation Organisation (SCO), Moscow Format, UN**, and partner countries for coordinated aid, reconstruction, and counterterrorism initiatives.
- **Advocacy for Social & Human Rights:** Promote women's education, minority rights, and political inclusivity; expand scholarships, vocational training, cultural exchanges, and media outreach.

India-MERCOSUR Preferential Trade Agreement

India and Brazil have announced a joint declaration to expand the India-MERCOSUR Preferential Trade Agreement (PTA), strengthening India’s trade ties with Latin America, especially within the Mercosur bloc of Brazil, Argentina, Uruguay, and Paraguay.

Key Highlights of India-Brazil Joint Declaration for Deepening of India-MERCOSUR PTA

- **India-Brazil Joint Declaration:** Both nations agreed that the PTA will be significantly broadened to include both tariff and non-tariff issues, allowing more trade to benefit from preferential access.
 - A technical dialogue will soon begin, led by the Joint Administration Committee established under Article 23 of the PTA. This will help define the scope and modalities of the expanded deal.
 - The move aims to broaden tariff preferences and scale up bilateral trade between India and Brazil from the existing USD 12.2 billion to USD 20 billion by 2030.
- **India-MERCOSUR PTA:** India signed a Framework Agreement in 2003 to facilitate trade negotiations through reciprocal tariff preferences, followed by a PTA in 2004, which was implemented in 2009 in accordance with World Trade Organization (WTO).
 - A PTA allows countries to give preferential tariff access on certain products, unlike FTAs, which are broader and cover more goods.
 - India-MERCOSUR PTA is implemented through five annexes, covering tariff concessions for Indian and MERCOSUR products, rules of origin, safeguard measures, and a dispute settlement mechanism.
 - ❖ These annexes provide the framework to operationalise and manage trade under the agreement. It currently covers around 450 tariff lines, providing limited duty concessions.

Significance of India-MERCOSUR PTA

- **Strengthening South-South Cooperation:** As key members of BRICS, G20, and IBSA, India and Brazil are enhancing trade and strategic ties, reinforcing South-South Cooperation.
 - India’s engagement with PTAs in emerging Latin American economies is advancing its multipolar foreign trade strategy.
- **Enhanced Market Access:** Wider tariff concessions will make Indian products more competitive in Latin America, reducing dependence on Chinese and European suppliers.
 - In FY 2024-25, India’s exports to MERCOSUR were USD 8.12 billion, with imports at USD 9.36 billion, mainly from Brazil.
- **Strategic Trade Outreach:** Deepening ties with MERCOSUR complements India’s push for Free Trade Agreements

(FTAs) with the EU, the US, and Indo-Pacific partners, diversifying its trade portfolio.

- **Agriculture and Energy Opportunities:** India can benefit from agricultural imports, energy resources, and raw materials, while exporting pharmaceuticals, engineering goods, and IT services.

MERCOSUR

- **About:** MERCOSUR (Southern Common Market) is a regional trading bloc in Latin America, initially established by Argentina, Brazil, Paraguay and Uruguay, and subsequently joined by Venezuela and Bolivia.
 - It was established in 1991 under the Treaty of Asuncion with the goal of promoting free movement of goods, services, capital, and people among member states.
 - The Treaty of Ouro Preto (1994) gave MERCOSUR a legal identity and established it as a customs union, allowing common external tariffs and coordinated trade policies.
 - The bloc’s headquarters are in Montevideo, Uruguay, and its official languages are Portuguese and Spanish.
- **Significance:** MERCOSUR is the fourth largest integrated market after the European Union (EU), North American Free Trade Agreement (NAFTA), and Association of Southeast Asian Nations (ASEAN).
 - MERCOSUR countries form the world’s 6th largest economy with a total population of 270 million people.

Challenges in Expanding the India-MERCOSUR PTA

- **Agricultural Protectionism:** MERCOSUR countries, especially Brazil and Argentina, have strong protection for their agricultural sectors, limiting India’s access for goods like sugar, pulses, and dairy.
- **Economic Asymmetry:** MERCOSUR economies are heavily commodity-export oriented, while India is more diversified in manufacturing and services.

- This asymmetry makes it hard to agree on **reciprocal concessions** without deepening trade imbalances.
- **Consensus Among Member States:** Unlike **bilateral FTAs**, all MERCOSUR countries must approve product lists, tariff lines, and rules of origin, slowing decision-making.
- **Infrastructure and Logistics Constraints:** Even with tariff concessions, trade flows can be limited by **transportation, shipping, and supply chain inefficiencies** between India and South America.
- **Non-Tariff Barriers (NTBs):** Differences in standards, technical regulations, and customs procedures can restrict trade even if tariff concessions are granted. Harmonizing NTBs is often more challenging than tariff negotiations.

Measures to Strengthen India-MERCOSUR PTA

- **Deepening Product Coverage:** Expand the PTA beyond 450 tariff lines and prioritize **mutually beneficial sectors** such as IT, clean energy, and automotive components.
- **Addressing Non-Tariff Barriers:** Align standards, technical regulations, and sanitary measures with **WTO norms**, streamline customs procedures, and **strengthen digital trade** facilitation to **boost ease of doing business**.
- **Agricultural Negotiations and Market Access:** Secure phased access for pulses, rice, and processed food while respecting MERCOSUR sensitivities.
 - Explore cooperation in agri-technology, food processing, and joint value chains.
- **Strategic Alignment with South-South Cooperation:** Leverage India-Brazil ties under **BRICS and IBSA (India, Brazil and South Africa)** for coordinated policy support and promote investment linkages alongside tariff negotiations.

India Opposes China-Led WTO Investment Pact

India raised concerns at the **World Trade Organization (WTO)** over the **China-led Investment Facilitation for Development Agreement** citing **systemic, legal, and procedural implications**.

Investment Facilitation for Development Agreement

- **About:** It is a **plurilateral WTO initiative** to **streamline bureaucratic procedures** and **enhance the transparency of investment rules** to make it easier to attract global **Foreign Direct Investment (FDI)**. It focuses on **administrative reforms** and **cooperation**.
 - The **core aim** is to create **legally binding provisions** to **facilitate and increase the flow of Foreign Direct Investment (FDI)**, especially to **developing and least-developed countries**, to foster **sustainable development**.
 - It has gathered support from **127 WTO members**, including **90 developing economies** and **27 LDCs**,

representing **three-quarters of membership** and highlighting its relevance for the **Global South**.

Key Features:

- **Plurilateral Agreement:** It is **proposed** as a **plurilateral agreement**, binding only on members who accept it, and will be included in **Annex 4 (Plurilateral Trade Agreements)** of the **Marrakesh Agreement 1994**.
- **Most-Favoured-Nation (MFN) Treatment:** Any concession given to one **investor** from a signatory country must be extended to all **other signatories**.
- **Open for Accession:** Any **WTO member** can join the agreement.
- **India's Objections:** India argues that the **investment facilitation** is a **"non-mandated, non-multilateral issue"** and its **inclusion** within the **WTO framework** undermines the organisation's established **mandate**.
 - India views this **plurilateral push** as a threat to the **consensus-based, member-driven** nature of the organization, allowing groups to bypass broader **membership agreement**.

Other Key WTO Agreements

- General Agreement on Tariffs and Trade (GATT)
- General Agreement on Trade in Services (GATS)
- Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)
- Agreement on Agriculture (AoA)
- Agreement on the Application of Sanitary and Phytosanitary Measures (SPS)
- Agreement on Technical Barriers to Trade (TBT)
- Agreement on Trade-Related Investment Measures (TRIMs)
- Agreement on Subsidies and Countervailing Measures (ASCM)

India's WTO Priorities

- India's stance is part of a larger strategic position to protect its policy space and prioritize longstanding development issues:
 - India insists that the WTO must first address unresolved issues from the Doha Development Agenda, especially in agriculture (e.g., permanent solution for public stockholding, special safeguard mechanism).
 - India stresses that any reform must restore a fully functional dispute settlement system and preserve the principle of Special and Differential Treatment for developing countries.

NOTE: India is a founding member of the WTO (1995) and a signatory to all its multilateral agreements listed above. However, it opposes non-mandated plurilateral agreements, such as the Investment Facilitation for Development (IFD) proposal.

Environment & Ecology

WTO Agreement on Fisheries Subsidies

India is in the process of ratifying the **World Trade Organization (WTO) Agreement on Fisheries Subsidies**, positioning itself as a strong voice for sustainable fishing practices and the protection of small-scale fishers.

- The move comes amid **global efforts to curb harmful subsidies** that drive overfishing and threaten marine biodiversity.

WTO Agreement on Fisheries Subsidies

- **About:** The **WTO Agreement on Fisheries Subsidies** is a **binding multilateral agreement**, aimed at promoting environmental sustainability and fair trade in global fisheries.
 - It is the **first WTO agreement focused on ocean governance and protecting marine resources**. The agreement was adopted at **WTO's 12th Ministerial Conference in 2022**, under the **Geneva Package**; it entered into force in September 2025 after two-thirds of WTO members deposited their acceptance instruments.
- **Key Objectives:** Prohibit subsidies that contribute to overfishing, overcapacity, and depletion of fish stocks.
 - Safeguard the livelihoods of millions dependent on fisheries for nutrition and income.
 - Provide a level playing field by disciplining subsidies that distort competition.
- **Key Features:**
 - **Subsidy Prohibitions:** Prohibits government support for illegal, unreported, and unregulated (IUU) fishing, fishing of overfished stocks, and fishing on unregulated high seas.
 - **Transparency Mechanism:** WTO members must notify their subsidies and fishing activities for monitoring.
 - **Implementation Support:** The **WTO Fish Fund** was established to aid developing countries and **Least Developed Countries (LDCs)** by providing technical support and funding.
 - **Committee on Fisheries Subsidies:** Provides a forum for regular dialogue, compliance review, and technical assistance.

India's Stance on the Agreement

- **Protection for Small Fishers:** India seeks **policy space and exemptions** to safeguard livelihoods of small-scale and artisanal fishers. India advocates for **precise and effective**

Special and Differential Treatment (S&DT), including a **25-year transition period** for developing countries and LDCs, compared to 5–7 years proposed by developed nations.

- **Per Capita Subsidy Basis:** India proposes that subsidy disciplines be calculated **per fisher**, not on total subsidy amounts, highlighting the disparity between high subsidies in developed countries (USD 76,000 per fisher) **versus India (USD 35 per fisher)**.
- **Stricter Rules for Historical Subsidisers:** Calls for stricter rules targeting countries that have historically given high subsidies contributing to overfishing, while protecting nations with low-impact fisheries.
- **Sustainability Focus:** Emphasizes that rules should **not penalize nations working toward sustainable fishing** and should support long-term marine conservation.

India's Initiatives and Schemes to Promote Sustainable Fisheries

- Blue Revolution Scheme (2015-16)
- Pradhan Mantri Matsya Sampada Yojana (PMMSY, 2020)
- Fisheries and Aquaculture Infrastructure Development Fund (FIDF, 2018-19)
- National Policy on Marine Fisheries (NPMF, 2017)
- **State Specific Marine Fishing Regulation Acts (MFRA):** States like Maharashtra, Kerala regulate fishing in **India's Exclusive Economic Zone**, including fishing bans and the prohibition of destructive practices.
- ICAR-Central Institute of Fisheries Education (CIFE)

The Production Gap Report 2025

The **Production Gap 2025 report** reveals that countries plan to produce more fossil fuels in 2030 than required to limit global warming to **1.5°C (Paris Agreement)**. It highlights that production plans have **increased since 2023**, widening the gap between current policies and the actions needed to meet climate goals.

The Production Gap Report 2025

- It is published by **Stockholm Environment Institute (SEI)**, **Climate Analytics**, and the **International Institute for Sustainable Development (IISD)**, and backed by the UN.
- It **tracks the discrepancy** between governments' planned fossil fuel production and global production levels needed to limit **global warming to 1.5°C or 2°C**.
- 2025 Edition marks the **fifth edition of the report**, which was **first released in 2019**. This edition updates the analysis presented in the 2023 report.

Key Findings of the Report

- **Rising Coal Demand:** Coal continues to be the most misaligned, with projected global output in **2030 being 500% higher** than what the 1.5°C pathway allows.
 - India launched the **Coal Gasification Mission** in 2020, aiming to gasify 100 million tonnes of coal by 2030.
 - ❖ Coal gasification is a thermo-chemical process that converts coal into synthesis gas or “syngas”, primarily consisting of carbon monoxide and hydrogen.
- **Rise in Fossil Fuel Production:**
 - Planned fossil fuel production in 2030 is set to surpass levels required to limit warming to 1.5°C by over 120% and to 2°C by 77%.
 - Governments plan **higher coal production to 2035** and **gas production to 2050** than in 2023. **Oil production** is also projected to increase to 2050.
 - In 2023, the government provided Rs **726 billion in oil and gas subsidies** and aims to **increase gas's share in the energy mix** from 6.2% to 15% by 2030.
- **Major Contributors:**
 - **China, the US, and Russia** accounted for over **half of global extraction-based emissions** from fossil fuels in 2022, while **20 major producers** contributed around **80% of global production**.
- **Limited Alignment with Climate Targets:**
 - Among **20 major producers**, **17** plan to increase at least one fossil fuel by 2030, and **11 countries** (including **China, India, US, Germany**) plan higher production than in 2023.
 - Only **6 countries** are aligning fossil fuel production with **net-zero targets** (up from 4 in 2023).

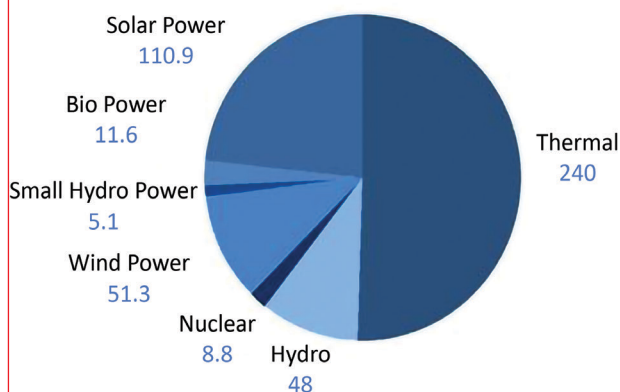
Balancing Fossil Fuel Production with Renewable Energy (G-R-I-D-S)

- **G - Grid Infrastructure Modernization:** Invest in **energy storage** (batteries, pumped hydro) and **green energy corridors** to store and transmit **solar and wind power**, reducing reliance on **fossil fuels**.
- **R - Reskill Workers:** Reskill **coal sector workers** in states like **Jharkhand, Chhattisgarh, and Odisha** and repurpose former mining areas for **solar parks** or industrial uses to support a socially acceptable energy transition.
- **I - Increase Energy Efficiency:** Enforce **strict energy efficiency standards** and promote **demand response programs** to reduce overall energy demand and balance the grid with abundant **solar power**. E.g., **Perform, Achieve and Trade (PAT) Scheme**.
- **D - Develop Natural Gas as a Bridge Fuel:** Increase the **natural gas share** from 6.2% to 15% by 2030, leveraging **flexible gas plants** that emit **50% less CO₂** than coal to support **renewables** and reduce emissions.
- **S - Sustainability through Policy Integration:** Align **fossil fuel reduction targets** with **renewable energy goals** using **carbon pricing, renewable subsidies**, and phasing out **inefficient fossil fuel subsidies**.

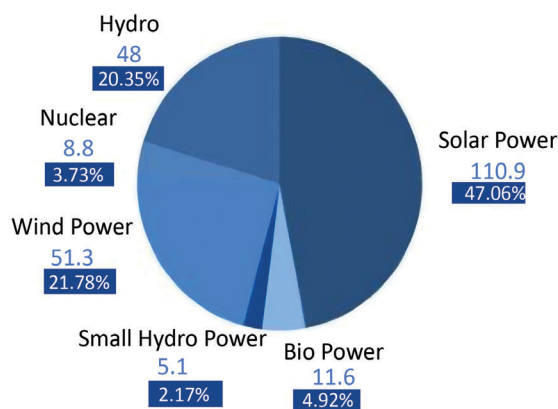
India's Initiatives to Reduce Dependence on Fossil Fuels

- Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)
- National Green Hydrogen Mission
- Green Energy Corridor (GEC)
- Perform, Achieve and Trade (PAT) Scheme
- National Policy on Biofuels

**India's Installed Power Capacity Mix
(Numbers in Gigawatt)**



**Non-Fossil Fuel Installed Capacity in India
(Numbers in Gigawatt)**



As of June, 2025

Cold Desert Biosphere Reserve

The **Cold Desert Biosphere Reserve (CDBR)** in Himachal Pradesh, along with **25 other biosphere reserves** across several countries, has been included in **World Network of Biosphere Reserves (WNBR)** by UNESCO.

- **São Tomé and Príncipe** (island country of Central Africa) becomes the **first state** to have its **entire territory** designated as a **biosphere reserve**.

Key Facts Regarding the Cold Desert Biosphere Reserve

- **Location:** In the **Trans-Himalayan region**, the reserve covers the **entire Spiti Wildlife Division** and adjoining areas of the **Lahaul Forest Division**, including **Baralacha Pass, Bharatpur, and Sarchu** (altitudes **3,300–6,600 m**).
 - It was declared a **biosphere reserve in 2009**, becoming India's **16th** and first **high-altitude cold desert biosphere reserve**.
- **Landscape:** It integrates **Pin Valley National Park, Kibber Wildlife Sanctuary, Chandratol Wetland**, featuring **windswept plateaus, glacial valleys, alpine lakes, and high-altitude desert**, making it one of the **coldest and driest ecosystems in WNBR**.
- **Floral Diversity:** It contains **14 endemic, 68 native, and 62 threatened plant species**, including key medicinal plants such as *Salix spp.*, *Betula utilis* etc.

- It supports **hardy alpine grasses, medicinal herbs**, and rare stands of **Willow-leaved sea-buckthorn, Himalayan birch, and Persian juniper**.

- **Faunal Diversity:** It is home to **rare and endangered species**, including the **snow leopard, Himalayan wolf, Tibetan antelope, Himalayan brown bear, Himalayan griffon, Himalayan ibex, bearded vulture, red fox, and Tibetan gazelle**.

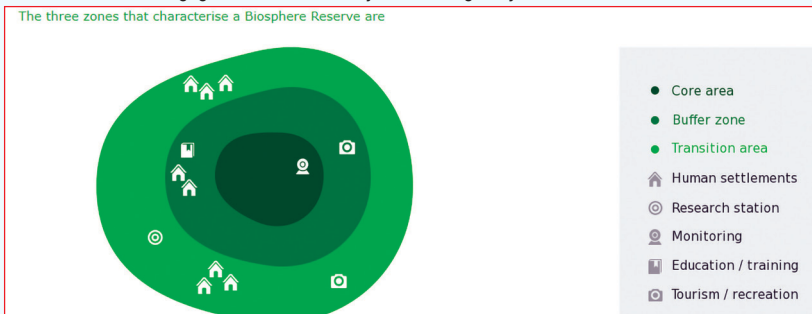
World Network of Biosphere Reserves

- **About:** The **World Network of Biosphere Reserves (WNBR)** consists of a **dynamic and interactive network of sites of excellence**.
- **Objective:** It promotes **North-South, South-South and South-North-South collaboration** and represents a **unique tool for international cooperation** through the **exchange of experiences and know-how, capacity-building** and the **promotion of best practices** among **Biosphere Reserves**.
- **UNESCO Affiliation:** The WNBR operates under the **United Nations Educational, Scientific and Cultural Organization's (UNESCO) Man and the Biosphere Programme**.
- **Global Coverage:** The WNBR now includes **785 sites in 142 countries**, with an additional **one million sq km of natural areas** brought under protection since 2018 — **equivalent to the size of Bolivia**.

Biosphere Reserve

- **About:** A **Biosphere Reserve (BR)** is an international designation by **UNESCO** for significant **natural and cultural landscapes**, covering extensive **terrestrial, coastal, or marine ecosystems**, or a **combination** of these.
 - They are an **in situ conservation** method that balances **economic and social development** with **cultural and natural preservation**, exemplifying **harmonious human-environment coexistence**.
- **Function:** Biosphere reserves serve three main functions:
 - **Conservation:** Protecting **biodiversity** and cultural diversity.
 - **Economic Development:** Promoting **socio-culturally and environmentally sustainable growth**.
 - **Logistic support:** Facilitating development through **research, monitoring, education, and training**.
- **Structure of BR:** Biosphere reserves achieve their functions through **three zones**:
 - **Core areas:** **Strictly protected** for conservation of **landscapes, ecosystems, species, and genetics** (e.g., **National Park or Wildlife Sanctuary**)
 - **Buffer zones:** Surround the core for **eco-friendly activities** supporting **research, monitoring, training, and education**.
 - **Transition area:** Where communities engage in **socio-culturally and ecologically sustainable economic and human activities**.

The three zones that characterise a Biosphere Reserve are



Contd...

Biosphere Reserve

- **Criteria for Designation of BR:** A site should have a **protected, minimally disturbed core area** of conservation value, large enough to sustain viable populations across all **trophic levels** and representing a **bio-geographical unit**.
 - It should involve **local communities**, incorporating their knowledge in biodiversity preservation, and support the **preservation of traditional tribal or rural lifestyles** for harmonious environmental use.

Biosphere Reserve in India

- **Overview:** India launched the **Biosphere Reserve scheme in 1986**, guided by the **UNESCO MAB Programme**, as **India is a signatory** to the landscape approach promoted by MAB.
- **Financial Assistance:** Under the scheme, **funding is provided in a 90:10 ratio** to the **North Eastern Region States** and **three Himalayan states**, and in a **60:40 ratio** to other states for the **maintenance, improvement, and development** of biosphere reserves.
 - The **State Government** prepares the **Management Action Plan** for each reserve, which is then **approved and monitored** by the **Central MAB Committee**.
- **BR in India:** India has **18 biosphere reserves**, of which **13 are now listed in UNESCO's WNB**.

Carbon Capture, Usage and Storage (CCUS)

A **Climate Analytics report** warns that Asia's vast **Carbon Capture Usage and Storage (CCUS)** plans could result in nearly **25 billion tonnes of extra greenhouse gas emissions by 2050**.

- This is because most **CCS projects** across **China, Japan, South Korea, and Indonesia** are **designed less to cut emissions and more to extend the life of coal, oil, and gas**.

Carbon Capture, Usage and Storage

- **About:** CCUS is a suite of technologies that **capture CO₂ emissions** from major sources like **power plants, refineries, and industries**, or **remove CO₂ from the atmosphere**.
- **Working of CCUS:** CCUS involves three main stages — **capture, transport, and storage (or use) of CO₂**.
 - **Capture methods include:**
 - ❖ **Post-combustion:** Separates CO₂ from flue gas using solvents after fuel combustion.
 - ❖ **Pre-combustion:** Converts fuel into a hydrogen-CO₂ mix before burning, then separates CO₂.
 - ❖ **Oxy-fuel combustion:** Burns fuel in pure oxygen, producing CO₂ and steam for easy capture.
 - Captured CO₂ is **compressed and transported** via **pipeline, ship, rail, or road** and **injected into deep geological formations** like **depleted oil and gas fields or saline aquifers** for **long-term storage**. Alternatively, it may be used in **commercial applications**.
- **Role in Tackling Climate Change:** CCUS plays a key role in **global decarbonisation** by:
 - **Reducing emissions** in **hard-to-abate sectors** like **steel, cement (7% of global emissions), and chemicals**.
 - **Producing low-carbon electricity and hydrogen** to replace fossil fuels across industries and transport.
 - **Removing existing CO₂ from the atmosphere** through **Bioenergy with CCS (BECCS)** and **Direct Air Capture (DACCS)**.
 - It can be installed on **coal, gas, or biomass plants**, enhancing **energy security** by diversifying low-carbon energy sources.

Climate Concerns Arising from Asia's Growing Reliance on CCUS

- **Massive Excess Emissions:** Depending on the **CCUS scenario**, Asia could emit an additional **24.9 gigatonnes of CO₂-equivalent by 2050**—more than the combined fossil fuel emissions of **South Korea and Australia**.
 - This **overshoot** isn't minor; it's a potential **disaster** that would single-handedly **jeopardize global climate targets**.
- **Economic Lock-In:** A **high-CCS pathway** risks **locking countries into expensive, outdated fossil fuel infrastructure**, creating **stranded assets** and **diverting investment** from cleaner alternatives.
- **Exacerbate Regional Vulnerabilities:** A **high-CCS pathway** fuels the **climate threats** that most endanger Asia—**sea-level rise, monsoonal instability, and heatwaves**—while perpetuating **deadly air pollution** from **uncaptured NOx and SOx**.
- **Growing Energy Demand:** **Governments** are using **CCUS as an energy security strategy** to exploit **domestic fossil fuels** like **coal and gas**, paying lip service to **climate goals** while avoiding a full **renewable transition**.

India's Current Status in the CCUS

- **Limited Deployment:** India currently has **minimal CCS infrastructure** with **no major operational projects or storage facilities**, leaving it **largely disconnected** from regional CCS networks.
- **CCU Testbeds for Cement Sector:** India has launched its **first cluster of five CCU testbeds** for the **cement sector**, under a **Public-Private Partnership (PPP)** model, focusing on:
 - **Oxygen-enhanced Calcination:** Converting **CO₂ into concrete blocks and olefins** (e.g., ethylene, propylene).
 - **Carbon-negative Mineralisation:** **Permanently locking CO₂ into rock formations**.
 - **Vacuum Swing Adsorption:** **Separating CO₂ from cement kiln gases and integrating it back into construction materials**.

- **National Centres in Carbon Capture:** Supported by the Department of Science & Technology, India is establishing two National Centres of Excellence (CoE) in Carbon Capture and Utilization (CCU) at:
 - NCoE-CCU at IIT Bombay, Mumbai, and
 - NCCCU at JNCASR, Bengaluru.
- **Renewable Advantage:** India's progress in solar, wind, electric mobility, and green hydrogen offers a decarbonisation pathway without heavy CCUS.
 - USD 4.3 billion in government support for CCS raises debate on directing funds toward renewables and green innovation.

Concerns Associated with CCUS

- **Low Capture Efficiency:** Most CCS projects capture only around 50% of CO₂, far below the 95% required for meaningful emission abatement, making them less effective as a climate solution.
- **Fossil Fuel Dependence:** About 80% of existing CCS projects use captured CO₂ for Enhanced Oil Recovery (EOR), which extends fossil fuel extraction rather than reducing it.
- **High Economic Costs:** CCS-based power generation can make electricity up to twice as expensive as renewables with storage. CCUS facilities are both capital- and energy-intensive, raising concerns about economic viability, especially in Asia.
- **Sectoral Misalignment:** Most CCS projects target fossil fuel sectors like gas, LNG, and hydrogen production — areas that already have zero-emission alternatives — while hard-to-abate sectors such as steel and cement receive minimal investment.
- **Emergence of Cheaper Alternatives:** Renewables, electrification, and energy efficiency are already more cost-effective than fossil fuels with CCS. A high-CCS pathway could cost up to USD 30 trillion more globally by 2050 compared to a low-CCS route.
- **Environmental Risks:** Potential CO₂ leakage from underground storage could reverse emission reductions and damage ecosystems.

Strategy that India Should

Adopt for CCUS in its Green Transition Pathway

- **Prioritize Renewables:** Focus on solar, wind, green hydrogen, and electric mobility as primary decarbonization pathways. Use CCUS only where emissions are hard to abate, such as steel, cement, and chemical industries.
- **Pilot and Scale Selectively:** Implement small-scale, high-efficiency CCUS projects to evaluate cost-effectiveness and environmental safety. Avoid blanket deployment that encourages continued fossil fuel reliance.

- **Develop Storage Atlas:** Storage is as crucial as the Capture; without safe, accessible storage, CCUS is ineffective.
 - Oil and Natural Gas Corporation (ONGC) and the Geological Survey of India (GSI) should map depleted oil and gas fields (e.g., Bombay High) and deep saline aquifers to reduce investment risks.
- **Technology Transfer & Finance:** Negotiate with developed countries for CCUS technology and finance, positioning it as key for Global South industrialization. Invest in R&D for Direct Air Capture (DAC) and BECCS to lead in climate restoration technologies.

Sundarbans' SAIME Model Wins FAO Global Recognition

Sustainable Aquaculture in Mangrove Ecosystems (SAIME) model developed by the Nature Environment and Wildlife Society (NEWS) in West Bengal's Sundarbans has been conferred Global Technical Recognition by the Food and Agriculture Organization (FAO) of the United Nations.

SAIME Model

- **About:** It is a community-based initiative in the Sundarbans, West Bengal, that aims to balance mangrove conservation with aquaculture-based livelihoods.
 - Under this model, 5–30% of aquaculture pond areas are kept under mangrove cover, protecting the ecosystem while supporting fish and shrimp farming.
 - Farmers use mangrove litter as natural fodder for the Black Tiger Shrimp (*Penaeus monodon*), a high-value species traditionally farmed in the region, thereby reducing dependence on chemical inputs.
 - The approach promotes climate-adaptive aquaculture, helping farmers increase profits and strengthen coastal resilience against sea-level rise and erosion.
- **Impact:** The SAIME Model has doubled farmers' annual net profits by cutting down on production costs.
 - The SAIME approach is climate-adaptive, addressing the threats of sea-level rise and salinity intrusion in the deltaic Sundarbans.
 - Mangroves integrated into ponds act as natural carbon sinks, aiding carbon sequestration and mitigating local climate impacts.
 - By balancing economic needs with environmental responsibility, it demonstrates a scalable solution for coastal livelihood resilience.
 - The model contributes directly to global climate goals under the FAO's sustainable food systems and ecosystem restoration frameworks.

Sundarbans

- **Geographical Distribution:** The Sundarbans hosts the largest mangrove forests in the world, located on the delta of the Ganges, Brahmaputra, and Meghna rivers along the Bay of Bengal.
 - It is a unique mangrove ecosystem that lies between land and sea, consisting of a mosaic of islands constantly shaped by tidal waters, and is spread across India and Bangladesh in tropical and subtropical zones.
- **Biological Landscape:**
 - **Flora:** Dominated by *Heritiera fomes* (sundari), *Excoecaria agallocha* (gewa), *Ceriops decandra* (goran), and *Sonneratia apetala* (keora).
 - ❖ Salinity increase is replacing tall trees with dwarf species, changing forest structure.
 - **Fauna:** Bengal tiger, Gangetic and Irrawaddy dolphins, estuarine crocodiles, and olive ridley turtles.
 - **Ecological Role:** It acts as a nursery ground for fish, crabs, and shrimp; mangroves buffer coasts against storms and store carbon.
- **Protection:**
 - The Sundarbans was designated a UNESCO World Heritage Site in 1987 in India and 1997 in Bangladesh.
 - Sundarban Wetland (India) was declared a Wetland of International Importance under the Ramsar Convention in 2019.
 - India–Bangladesh MoU (2011) was signed to promote joint conservation and monitoring of the Sundarbans' shared ecosystem.
 - The Sundarbans Biosphere Reserve (BR) includes multiple national parks and wildlife sanctuaries, such as:
 - ❖ Sundarbans National Park (India)
 - ❖ The Sundarban Wildlife Sanctuaries in Bangladesh are part of a large mangrove forest.
 - ❖ Sundarbans Reserve Forest (Bangladesh)



Significance of Mangroves

- **Carbon Sequestration:** Mangroves are powerful **blue carbon sinks**, storing **tonnes of carbon per hectare** due to slow decomposition in their saline, oxygen-poor soils.
- **Coastal Protection:** They act as **natural barriers** against storms, tsunamis, and erosion reducing **wave energy by 5–35%** and flood depths by up to **70%**, safeguarding coastal communities.
- **Biodiversity Hotspots:** Home to over **5,700 species** in India mangroves are vital for ecological balance. Mangroves support **global fisheries**, nurture marine species, and provide **honey, fruits, and leaves**, sustaining millions of coastal livelihoods.

Major Threats and Conservation Strategies for India's Mangrove Ecosystem

Aspect	Threat	Conservation Strategy
Land Conversion	Large-scale clearing of mangroves for aquaculture, oil palm , and rice cultivation has led to significant loss of mangrove cover.	Enforce stricter coastal zoning and land-use regulations . Integrate mangrove buffers in coastal development plans.
Timber Extraction & Charcoal Production	Unsustainable logging and wood harvesting degrade mangrove ecosystems, reducing biodiversity and carbon sequestration capacity.	Promote alternative livelihoods for local communities. Strengthen enforcement under the Forest Conservation Act, 1980 .
Pollution	Oil spills , industrial effluents, and plastic waste hinder mangrove regeneration and soil quality.	Implement phytoremediation and cleanup drives . Impose strict liability for oil and chemical spills.
Invasive Species	Species like Prosopis juliflora outcompete native flora , alter soil salinity, and obstruct mangrove regeneration.	Use bio-restoration methods and native species replantation for protecting the native species.
Climate Change & Sea-Level Rise	Increased salinity, coastal erosion, and submergence threaten mangrove habitats.	Strengthen Blue Carbon Initiative participation. Build climate-resilient mangrove belts.

Science & Technology

IndiaAI Mission and Its Role in Fostering a Responsible AI Ecosystem in India

The **seven pillars of the IndiaAI Mission** aim to ensure responsible and safe AI deployment in India.

- **IndiaAI Compute Pillar** : This pillar provides **high-end GPUs** at **affordable costs**. These GPUs are available at a **subsidized rate** of just **₹65 per hour**.
- **IndiaAI Application Development Initiative** : This pillar develops **AI applications** for **India-specific challenges**.
 - Sectors include **healthcare, agriculture, climate change, governance, and assistive learning technologies**.
- **AIKosh (Dataset Platform)** : AIKosh develops **large datasets** for **training AI models**. It integrates data from **government and non-government sources**.
- **IndiaAI Foundation Models** : This pillar develops India's own **Large Multimodal Models** using **Indian data and languages**. It ensures **sovereign capability** and **global competitiveness** in **generative AI**.
- **IndiaAI FutureSkills** : This pillar builds **AI-skilled professionals**.
- **IndiaAI Startup Financing** : This pillar provides **financial support** to **AI startups**. The **IndiaAI Startups Global program** launched in **March 2025**.
- **Safe and Trusted AI** : This pillar ensures **responsible AI adoption** with **strong governance**.
 - Focus areas: **machine unlearning, bias mitigation, privacy-preserving ML, explainability, auditing, governance testing**.

AI Ecosystem in India

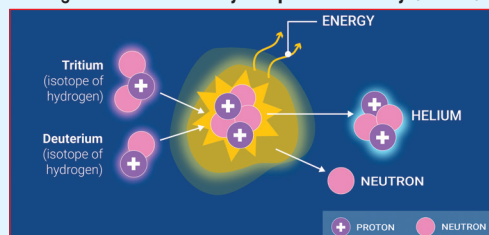
- **Tech Sector Growth**: Annual revenues projected to **cross USD 280 billion** in 2025.
- **Employment**: Over **6 million professionals** are employed in the **tech and AI ecosystem**.
- **Global Capability Centres (GCCs)**: India hosts **1,800+ GCCs**, with **500+ focused on AI**.
- **Startup Landscape**: Approximately **1.8 lakh startups** in India; **89% of new startups** last year incorporated **AI into products/services**.
- **AI Adoption**: On the **NASSCOM AI Adoption Index**, India scores **2.45/4**, with **87% of enterprises** actively using **AI solutions**.
- **Leading Sectors**: Key adopters include **industrial & automotive, consumer goods & retail, BFSI, and healthcare**, contributing around **60% of AI's total value**.
- **AI Maturity**: About **26% of Indian companies** have achieved **AI maturity at scale** (BCG survey).

India's Roadmap for Fusion Power

Researchers at the **Institute for Plasma Research (IPR), Gandhinagar**, proposes a **roadmap for India's fusion power**, focusing on the development of the **Steady-state Superconducting Tokamak-Bharat (SST-Bharat)** reactor, marking a major step in **India's energy strategy**.

Fusion

- **About**: Fusion is the process where **two small, light atoms** (like hydrogen isotopes) come together to form a **bigger, heavier atom**, releasing vast amounts of **energy**. This is the energy process that powers the Sun and stars.
 - For example, in the Sun, **hydrogen nuclei fuse to form helium** and release energy in the form of light and heat.
- **Energy Release**: The fusion of nuclei releases energy because the fused product **has less mass than the sum of the individual atoms**. This "lost" mass, known as the **mass defect**, is converted into energy according to **Einstein's theory of special relativity ($E=mc^2$)**.



- **Conditions for Fusion**:
 - **High Temperature**: Around **100 million°C**.
 - **High Pressure**: Forces atoms nuclei close enough to fuse.
 - **Plasma**: The material is in a high-energy state where atoms are broken into ions and electrons.
- **Tokamaks**: A tokamak is a **fusion reactor** that uses **magnetic fields** to confine and **control plasma** within a **doughnut-shaped vessel**. Its effectiveness is measured by how long it can hold the **plasma without dissipation**.
 - Longer confinement times bring reactors closer to achieving continuous and reliable fusion reactions.
- **Q Value (Energy Gain Factor)**: The **Q value** measures the efficiency of a fusion reactor. It is the ratio of **output energy to input energy**. A **Q value > 1** means the reactor produces more energy than it consumes.
- **Fusion vs Fission**: Fission is the process used in nuclear reactors. In fission, a **heavy nucleus** (like uranium) **splits into smaller nuclei**, releasing energy.
 - Fusion, on the other hand, combines lighter nuclei to release energy. Fusion produces **much less radioactive waste than fission**, making it a more attractive option for clean energy.

India's Roadmap for Fusion Power

- **India's Current Fusion Capabilities:** India's **Steady State Superconducting Tokamak (SST-1)** at IPR has achieved **plasma confinement for 650 milliseconds** (and it's designed to go up to 16 minutes), however it is **not designed for electricity generation** but serves as an experimental base.
 - India is already part of the **International Thermonuclear Experimental Reactor (ITER)** project in France, the world's largest fusion experiment using magnetic confinement techniques. ITER aims to achieve a **Q value of 10**.
- **SST-Bharat:** SST-Bharat is planned as the next step beyond experiments, aimed at **producing actual electricity**.
 - The SST-Bharat Vision aims to initially build a **130 MW fusion-fission hybrid reactor with a Q value of 5**.
 - The team plans to commission a full-scale demonstration reactor by 2060, targeting an ambitious **output-to-input power ratio (Q) of 20** and generating 250 MW.
- **Technology Measures:**
 - **Digital twins:** Virtual replicas of tokamaks to simulate conditions and test designs.
 - **Machine learning:** Leveraging **artificial intelligence** and **machine learning** helps in predicting and managing plasma behavior, crucial for better plasma confinement.
 - **Development of Radiation-Resistant Materials:** Focus on designing materials that can withstand the extreme radiation levels in fusion reactors.
 - **Superconducting Magnets:** Research into high-performance superconducting **magnets to create stronger magnetic fields** for better plasma confinement.

Global Advances in Fusion Power

- **United Kingdom:** UK STEP programme aims for a prototype fusion power plant by 2040.
- **US:** Several private firms claim they will deliver grid-connected fusion power in the 2030s.
- **China:** China's **Experimental Advanced Superconducting Tokamak (EAST)** tokamak has already set records for plasma holding duration (for about 1,066 seconds).

Challenges for India's Roadmap for Fusion Power

- **High Costs:** Fusion research requires significant investment in advanced technology, infrastructure, and reactors, putting pressure on India's public-sector budget.
- **Long Development Timeline:** India's target of **2060** for a fusion reactor is slower compared to global efforts, making the path to commercialization longer.

- Countries like **China** and the **US** are progressing faster with fusion, putting pressure on India to keep pace.
- **Limited Private Sector Involvement:** Unlike the **US** and **EU**, India's private sector plays a smaller role in fusion research, slowing innovation and progress.
- **Technological Hurdles:** Challenges include **plasma containment**, achieving the necessary **energy gain (Q value)**, and developing **radiation-resistant materials**, which complicate fusion's realization.
- **Competition with Other Energy Sources:** Fusion competes with **solar, wind, and nuclear fission**, while India's broader energy commitments, such as **net-zero by 2070**, may divert focus.
- **Uncertain Commercial Viability:** Even if fusion succeeds, its **cost-effectiveness** compared to existing energy sources remains uncertain.

Suggestions

- **Policy and Funding Support:** Allocate **long-term, mission-mode funding**, akin to ISRO or nuclear fission missions.
 - Involve **private-sector partnerships**, especially in advanced materials, AI, and digital simulations.
- **Global Collaborations:** Expand engagements beyond ITER, include **bilateral partnerships** with fusion labs in the US, UK, and EU.
 - Participate in international **fusion data sharing** initiatives and **joint training** of Indian scientists.
- **Realistic Targeting:** Fusion energy should be seen as a **strategic R&D frontier**, not a near-term energy source.
 - Align milestones with global benchmarks but **prioritize indigenous innovation** and technology localization.
- **Leveraging Fusion R&D for Broader Advancements:** Use fusion research to enhance capabilities in **superconducting materials, radiation shielding, plasma control, and AI-driven simulations**.
 - Strengthen India's independence in key sectors like **defense** and **space technology** through innovations from fusion research.

Safe and Trusted AI Ecosystem in India

The Ministry of Electronics and IT (MeitY), under its **IndiaAI Mission**, has selected **five pioneering projects** under the **Safe & Trusted AI** pillar, targeting **deepfake detection, bias mitigation, and security evaluation**.

- **IndiaAI, an Independent Business Division** under **MeitY**, is the **implementation agency** for the **IndiaAI Mission**. It aims to **democratize AI benefits** across all **strata of society** and ensure **ethical and responsible use of AI**.

Projects under IndiaAI's Safe & Trusted AI Pillar

■ Deepfake Detection:

- **Saakshya (IIT Jodhpur & IIT Madras):** Real-time multi-agent framework using **retrieval-augmented generation (RAG)** to detect and govern **deepfakes**, protecting against **misinformation** and **digital fraud**.
- **AI Vishleshak (IIT Mandi):** Enhanced **audio-visual deepfake** and **handwritten signature forgery detection** with **adversarial robustness** and **explainability**, aiding **forensic accuracy**.
- **Real-Time Voice Deepfake Detection (IIT Kharagpur):** Tools to detect **synthetic voice manipulations**, securing **communication channels** and preventing **identity fraud**.

■ Bias Mitigation:

- **Evaluating Gender Bias in Agricultural LLMs (Digital Futures Lab & Karya):** Benchmarks and mitigates **gender bias** in **AI models** for agriculture, fostering **fair** and **inclusive AI applications** benefiting **women farmers** and **rural communities**.

■ Penetration Testing and Evaluation:

- **Anvil (IIIT Dharwad):** A **penetration testing** and **evaluation tool** for **LLMs** and **generative AI**, enhancing **AI system security** and **resilience** against **adversarial attacks**.

Nightmare Bacteria

Drug-resistant nightmare bacteria infections are surging in US, with **NDM-1 (New Delhi Metallo-beta-lactamase-1)** cases rising fivefold from 2019–23.

- **Nightmare bacteria** are **Carbapenem-resistant Enterobacteriaceae (CRE)** like **Klebsiella pneumoniae** & **E. coli**.
- Resistant to last-resort **carbapenem antibiotics**.
- Cause severe, often fatal infections in **bloodstream, lungs & urinary tract**; easily spreads resistance genes.
- **NDM-producing bacteria** widespread in **South Asia** and **AMR** is a **global issue**.

Desert 'Soilification' Technology

Wheat has been successfully **grown for the first time in western Rajasthan's arid desert** using innovative 'desert soilification technology'.

- A biotechnological method that **turns barren desert sand into soil capable of supporting agriculture**.
 - Uses **bioformulations and polymers** to bind loose sand particles, improve soil structure & enhance water retention.

■ Key Feature:

- Enhances plant tolerance, making crops (**wheat, bajra, guar gum**) resilient to heat & arid conditions.
- **54% higher yields in bajra, guar gum, and chickpea** in bioformulation-amended sand compared to regular soil.
- **Reduces irrigation needs** by improving water retention in soil.

Siphon-powered Desalination

IISc has developed a new **siphon-based thermal desalination system** that transforms seawater into potable water.

- **Principle**– uses **siphon (gravity-driven flow)** with a **composite siphon** (fabric wick + grooved metallic surface) to draw and flush out **salts (before crystallization)**; gravity ensures smooth continuous flow.
- Produces **6+ liters of clean water** per m² per hour under sunlight, much higher than conventional solar stills.
- **Low-cost, scalable, sustainable**, built with simple materials (aluminum, fabric); works on **solar or waste heat**; treats high-salinity water (up to 20%) without clogging.

Quantum Breakthrough in Digital Security

In a global first, researchers from **Raman Research Institute (RRI)**, Bengaluru have developed a method to generate **true random numbers** using a **commercial quantum computer** vital for **hack-proof digital security**.

- This is the first major **globally-relevant research output** from **India's National Quantum Mission**, with key commercial and strategic implications for **critical infrastructure**.

True Random Numbers (TRNs) in Quantum Technology

- **About: Random numbers** are sequences of numbers generated by measuring the **inherently unpredictable behavior of quantum particles**, arising from **completely random physical processes** rather than any predetermined algorithm or pattern.
 - E.g., a photon in **quantum superposition** will **randomly collapse** into a state upon measurement. This randomness is **not predictable or influenced** by external factors.
- **Time Separation over Spatial Separation:** Previous experiments relied on **spatial separation of quantum particles** to ensure independence. Now, RRI introduced **time separation in a single particle's quantum state**, allowing for **more practical implementation** in everyday settings, **without requiring large setups**.

- This innovation brings the technology closer to **real-world applications**, where external factors like noise could distort quantum behaviors.
- **Significance in Digital Security:** Random numbers are the foundation of **encryption and cybersecurity**, used to generate **passwords, encryption keys, and authentication systems**.
- **True quantum randomness** ensures **unpredictability and maximum security**, making it vital for **future-ready encryption systems**.
- Current systems rely on **pseudorandom numbers** generated by algorithms that only may become **vulnerable to quantum computers** in the near future.

Difference between True Random Numbers & Current Methods (PRNs)

Feature	Current Methods (PRNs)	True Random Numbers (TRNs)
Source of randomness	Algorithmic (pseudorandom numbers-PRNs) or classical physical noise (thermal, electronic)	Intrinsic quantum phenomena (photon polarization, electron spin, quantum superposition)
Predictability	Can be predicted if algorithm or seed is known	Fundamentally unpredictable due to quantum uncertainty
Nature	Deterministic or noise-based	Truly random, non-deterministic
Mechanism	Uses mathematical algorithms (e.g., Linear Congruential Generators) or classical processes	Measures quantum processes, e.g., photon passing through a beam splitter or electron spin measurement
Security	Suitable for general computing, less secure for cryptography	Highly secure; ideal for cryptography and quantum key distribution
Applications	Simulations, games, general computing	Secure communications, quantum cryptography, high-security applications

Quantum Technology

- **About:** Quantum Technology refers to a class of advanced technologies that exploit the unique principles of quantum mechanics — such as superposition, entanglement, and quantum tunneling — to perform tasks that are impossible or extremely inefficient with classical technologies.
- **Core Principles:**
 - **Superposition:** Quantum particles (like electrons or photons) can exist in multiple states simultaneously until measured.
 - **Entanglement:** Two or more quantum particles can become strongly correlated, so the state of one instantaneously affects the other, even at a distance.
 - **Quantum Tunneling & Coherence:** Particles can pass through energy barriers and maintain a delicate quantum state, enabling precise computation and sensing.

National Quantum Mission

- **About:** It is a flagship initiative by the Ministry of Science & Technology to promote research, development, and applications of quantum technologies. It runs from 2023–24 to 2030–31.
 - It is one of the nine missions under the Prime Minister’s Science Technology Innovation Advisory Council (PMSTIAC).
- **Focus Areas:**
 - **Quantum Computing:** Develop intermediate-scale quantum computers (20–50 qubits in 3 years; 50–100 in 5 years; 50–1000 in 8 years).
 - **Quantum Communication:** Satellite-based secure communication over 2000 km, inter-city Quantum Key Distribution (QKD), and multi-node quantum networks.
 - **Quantum Sensing & Clocks:** High-precision magnetometers, gravity sensors, and atomic clocks for navigation, timing, and secure communication.
 - **Quantum Materials & Devices:** Develop superconductors, topological materials, and qubit devices for computing and metrology applications
- **Implementation Strategy:**
 - **Thematic Hubs (T-Hubs):** Four T-Hubs across IISc Bengaluru, IIT Madras (with C-DoT), IIT Bombay, and IIT Delhi.
 - **Hub-Spoke-Spike Model:** Central hubs, research projects (Spokes), and individual research groups (Spikes) for collaborative innovation.

History, Art & Culture

Naikpod Tribal Masks

The Naikpod tribal community of Telangana has recently filed an application under the Geographical Indications of Goods (Registration and Protection) Act, 1999, seeking GI registration for their handcrafted masks — which could become the 29th GI entry from the state.

Geographical & Cultural Linkage

- **Origin Districts:** Madaram village (Mulakalapalli mandal), Bhadradri-Kothagudem district, Telangana, reflecting localized tribal artistic ecosystems.
- **Tribal Custodians:** Produced by the Naikpod tribe, whose craft expresses ancestral stories, spiritual iconography, and nature-centric beliefs.
- **Ecological Factors:** Crafted using **Poniki wood**, bamboo splinters, and **natural dyes** (charcoal/ash-based pigments), emphasizing indigenous forest-linked knowledge.
- **Ritual Usage:** Prominently used in **Naikpod jataras** (local tribal festivals) depicting deities, heroic figures, and local lore — vital for identity continuity.

Distinctive Attributes of Naikpod Masks

- **Design vocabulary:** Vibrant motifs, stylized faces, forestry themes, animal figures, mythological warriors (e.g., Pandavas as “Korrajus”).
- **Eco-craftsmanship:** Production avoids chemical dyes, synthetic paints, and mass-produced moulds, aligning with sustainability.
- **Handcrafted uniqueness:** No two masks are identical — enhancing authenticity for GI qualification (reputation + origin + quality linkage).

Historical Evolution & Intangible Heritage

- The masks embody **oral traditions of tribal leadership, hunting, animism, and deity worship.**
- **Post-colonial neglect** weakened ritual patronage, leading to **revival-oriented GI initiatives.**
- **GI recognition** supports **heritage preservation and intergenerational continuity.**
- **Economic, Policy & Governance Relevance:**
 - Boosts tribal livelihoods through fair pricing and visibility, safeguards IP rights, aligns with schemes like PM-Vishwakarma and ODOP, and promotes craft-based tourism and sales.

Tiruppur Kumaran and Subramaniya Siva's Remembrance Day

Recently, PM Narendra Modi paid tributes to freedom fighters **Tiruppur Kumaran** and **Subramaniya Siva** on their remembrance day, lauding their role in awakening nationalist spirit and inspiring generations toward courage, cultural pride, and India's unity and development.

Tiruppur Kumaran (1904 – 1932): Kodi Kaatha Kumaran

Key Aspect	Details
Birth & Background	Born 4 Oct 1904 in a weaver family near Erode, Tamil Nadu. Inspired by Mahatma Gandhi.
Contributions	Founded <i>Desa Bandhu Youth Association</i> to mobilize youth for nationalist activities.
Martyrdom	Died 11 th Jan 1932 on the banks of Noyyal River, Tiruppur, while leading a protest against British rule. He held the banned national flag until his death — earning the title “ Kodi Kaatha Kumaran ” (“He who protected the flag”).
Legacy	Symbol of unflinching patriotism and sacrifice; India Post issued a commemorative stamp in 2004 (100 th birth anniversary). His memorial stands in Tiruppur — a major site of youth mobilisation and patriotic education.

Subramaniya Siva (1884 – 1925): Veeramurasu of Tamil Freedom Movement

Key Aspect	Details
Birth & Early Life	Born 4 Oct 1884 in Watalakundu, Dindigul district, Tamil Nadu. A freedom fighter, writer and social reformer known as <i>Sivam</i> or <i>Siva</i> .
Inspirations	Close associate of V.O. Chidambaram Pillai and Chinnaaswami Subramania Bharati (Mahakavi Bharathiyar); advocated a blend of politics and spirituality in the freedom struggle.
Organizations & Publications	Founded Dharma Paripalana Samajam (1906–07, Thiruvananthapuram) to spread nationalism and social reform. Published monthly magazine <i>Gnana Bhanu</i> and weekly <i>Prabuddha Mithran</i> (1916).
Writings	Authored works like <i>Ramanuja Vijayam</i> and <i>Madhva Vijayam</i> ; wrote patriotic essays under the pen name “ <i>Naradhar</i> .”
Death & Legacy	Died 23 rd July 1925 after years of suffering from leprosy contracted in British prisons.

Birth Anniversary of Mahatma Gandhi and Shri Lal Bahadur Shastri

2nd October marked the birth anniversaries of Mahatma Gandhi (1869-1948) and Lal Bahadur Shastri (1904–1966).

Mahatma Gandhi	Lal Bahadur Shastri
■ Born: 2 Oct 1869, Porbandar; studied law in England.	■ Early Life: Born at Mughalsarai; title "Shastri" from Kashi Vidyapeeth.
■ South Africa (1893–1914): Racial discrimination at Pietermaritzburg, founded Natal Indian Congress , <i>Indian Opinion</i> , Phoenix Settlement , Tolstoy Farm → evolved Satyagraha .	■ Freedom Struggle: Active in CDM; jailed 7+ years.
■ Return to India: 9 Jan 1915 (Pravasi Bharatiya Diwas); set up Sabarmati Ashram .	■ Political Career: UP Parliamentary Secy (1946); Union Minister (Railways, Home, etc.). Resigned after 1956 rail accident (moral responsibility).
■ Movements: Champaran (1917), Kheda (1918), Rowlatt (1919), NCM (1920), CDM (1930), QIM (1942).	■ Prime Minister (1964–66): During 1965 Indo-Pak war , gave slogan " Jai Jawan, Jai Kisan. "
■ Ideas & Writings: <i>Hind Swaraj</i> , promoted Khadi , Charkha .	■ Death: Died in Tashkent (11 Jan 1966) after signing Tashkent Declaration.
■ Institutions: All India Spinners' Association (1925), Harijan Sevak Sangh (1932).	
■ Death: Assassinated 30 Jan 1948.	
■ Legacy: 2 Oct = Gandhi Jayanti & International Day of Non-Violence (UN, 2007) .	

Gandhian Philosophy in Contemporary Initiatives

Initiative	Gandhian Philosophy
Swachh Bharat Mission	Cleanliness is next to godliness
Self-Help Groups (SHGs)	Cooperative economics & grassroots empowerment
Khadi & Village Industries	Swadeshi & village-based production
SVAMITVA Scheme	Village self-reliance & Panchayati Raj
PM Janjatiya Unnat Gram Abhiyan (PM JUGA / DAJGUA)	Tribal advancement for national development
MGNREGA	Right to dignified work & inclusive development

Family & Culture:

- They follow a nuclear family system, although extended families exist. Also known for their folk music and dances, such as Dhamal and Rasda, with men performing the Dhamal dance.

150th Anniversary of ‘Vande Mataram’

The Union Cabinet approved nationwide celebrations of **150 years of “Vande Mataram”** honouring **Bankim Chandra Chatterjee’s** iconic composition and its equal constitutional status with *Jana Gana Mana*.

- Aligns with the government’s focus on **civilisational heritage and cultural nationalism**, marking **2025 as a year of patriotic reflection**.

Siddi Community

Recently, President Droupadi Murmu met Gujarat’s Siddi PVTG, lauded their 72% literacy, praised eco-friendly lifestyles, and stressed tribal participation for an inclusive society aligned with India’s Vision 2047.

Key Points

- **Origin:** They are descendants of African slaves brought by the Portuguese in the late 17th century during the trans-Indian Ocean slave trade.
 - They exhibit Negroid physical traits. They are also known by different synonyms such as Habshi and Badsha.
- **Present-Day Location:** They mainly reside along the western coast of India, particularly in the states of Gujarat, Maharashtra, and Karnataka.
- **ST Status:** In India, the Union government in 2003, classified Siddis under the list of Scheduled Tribes.
 - They are also included in the Centre’s list of Particularly Vulnerable Tribal Groups.

Vande Mataram: Origin, Context & National Role	
Aspect	Details
Composer & Language	Composed in Sanskrit by Bankim Chandra Chatterjee (1838 – 1894), blending devotional and nationalist themes.
First Appearance	Featured in " Anandamath " (1882) — a novel (written on Sanyasi Rebellion) depicting resistance against colonial rule.
First Public Rendition	Sung by Rabindranath Tagore at the 1896 Indian National Congress session (Calcutta).
Theme & Symbolism	Depicts <i>Bharat Mata</i> as a divine mother figure symbolising strength, unity, and sacrifice.
Constitutional Status	■ On 24 th January 1950, the Constituent Assembly officially adopted "Vande Mataram" as the national song. In 2017, the Centre informed Delhi High Court that <i>Vande Mataram</i> enjoys equal constitutional respect with <i>Jana Gana Mana</i> .



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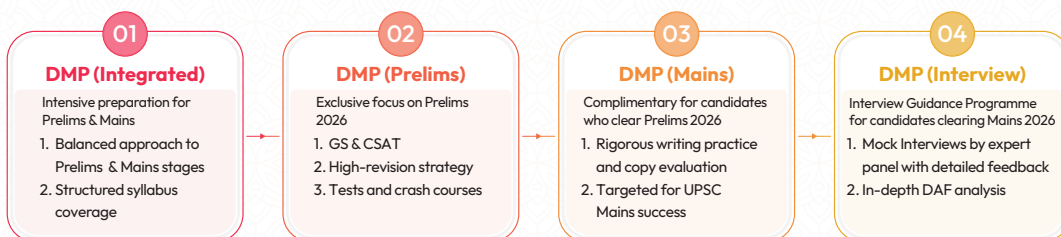
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Social Issues

Child Nutrition Report 2025

A **UNICEF** report titled ***Feeding Profit: How Food Environments Are Failing Children*** reveals how unhealthy food environments are contributing to the worldwide surge in **overweight and obesity in children and adolescents**.

Key Findings of Child Nutrition Report 2025

- **High Prevalence of Overweight and Obesity:** One in five children and adolescents (5–19 years) are living with overweight.
 - Obesity is **rising faster than overall overweight rates**. In 2025, for the first time, **global obesity prevalence** among 5–19-year-olds (9.4%) surpassed underweight (9.2%).
 - Obesity poses greater health risks and is harder to reverse, making this trend particularly concerning.
- **Unhealthy Food Environments:** Children face increasing exposure to ultra-processed foods and sugary beverages.
 - School food environments, instead of promoting health, are contributing to poor dietary habits.
 - ❖ UNICEF's U-Report poll (2023) in eight South Asian countries found that **unhealthy foods and drinks were more commonly available in schools than fruits or vegetables**.
 - Children in **poorer areas face greater exposure to unhealthy food displays** (sugary cereals, snacks, sweetened drinks) than wealthier peers.
- **Weak Legal Protections:** Only **18% of 202 countries** studied have **mandatory nutrition standards** for school meals.
 - Only **19% of countries** impose **national taxes** on unhealthy foods and sugar-sweetened beverages.
 - Most countries rely on voluntary or fragmented measures, leaving children vulnerable to unhealthy food systems.

Trends in Childhood Nutrition and Obesity in India

- **Rising Overweight and Obesity in India:** Prevalence of overweight and obesity among Under-Five Children rose 127% (from 1.5% in **National Family Health Survey (NFHS) 3**, 2005-06 to 3.4% in **NFHS 5**, 2019-21).
 - Adolescent girls' overweight/obesity increased by **125% (from NFHS 3 to NFHS 5)**, while boys' increased by **288%** during the same period.
- **Future Burden:** By 2030, India may have 27 million children and adolescents (5–19 years) with obesity, accounting for 11% of the global burden.

■ Key Drivers of the Epidemic:

- **Dietary Shifts: Ultra-processed foods (UPF)** and sugary beverages are replacing traditional diets rich in fruits and vegetables.
 - ❖ UPFs consumption surged from USD 900 million (2006) to USD 37.9 billion (2019), growing at over 33% annually.
- **Marketing Influence: Aggressive and targeted marketing**, especially digital ads, creates constant **exposure and temptation for children and adolescents**.
 - ❖ Growth in **supermarkets, hypermarkets, and convenience stores** has increased access to unhealthy foods. These outlets facilitate **widespread availability and aggressive promotion** of such foods.
- **Early Life Factors:** Poor maternal nutrition, inadequate breastfeeding, and childhood dietary practices contribute.
- **Social Norms:** Adolescent **girls and women often eat least and last**, exacerbating nutritional inequities.
- **Lifestyle Factors:** Low physical activity, increased screen time, and high consumption of UPF.

■ Health and Economic Implications:

- **Health Risks:** Childhood obesity increases risk of **diabetes, cardiovascular disease, hypertension, and certain cancers**.
- **Economic Costs:** In 2019, obesity cost India nearly **USD 29 billion, or 1% of Gross Domestic Product (GDP)**. By 2060, this could rise to **2.5% of GDP**, without urgent action.
- **National Burden:** Unhealthy diets contribute to **56% of India's disease burden**.

Initiatives Taken by India to Tackle Overweight and Obesity

- **Government Initiatives:** Fit India Movement, Eat Right India Campaign, POSHAN Abhiyaan 2.0, and Mission LiFE (Lifestyle for Environment).
- **Stop Obesity Campaign:** Urged families to **reduce cooking oil consumption by 10%**, emphasizing that such small changes can significantly impact public health.
- **Policy & Regulatory Actions:** Placement of **sugar and oil boards** in schools and offices to guide consumption.
 - India is the **first lower-middle-income country** to adopt **World Health Organization (WHO) best-practice policy** limiting trans-fat.

Global Best Practice in Curbing Obesity

- **Chile's Black 'High in' Labels:** Warning labels, such as Chile's black 'high in' labels (**High in saturated fats**", "**high in sodium**", "**high in sugar**", "**high in calories**"), have been shown to reduce consumption of **unhealthy foods** by 24%.
 - Replacing the star rating with mandatory 'high in' warnings would give consumers clearer information on the health risks of a product.

Challenges in Ensuring Childhood Nutrition in India

- **Lack of Clear Definitions:** FSSAI has yet to define **HFSS** or **UPFs**, making it difficult to regulate foods that should be restricted or flagged for high sugar, salt, and fat content.
- **Ineffective Food Labeling Systems:** The **Indian Nutrition Rating (INR)** system, where half a star represents the least healthy option and 5 stars signifies the healthiest.
 - However, it misleads consumers, as **foods high in fat, salt, and sugar (HFSS)** still score 2–3 stars despite being unhealthy.
- **Industry Lobbying and Influence:** Food industry representatives dominated the **stakeholder meetings**, sidelining scientific input, leading to a **system that favors industry interests over public health** which further contributes to rising obesity rates.
 - The **Food Safety and Standards Authority of India (FSSAI)** ignored its own **2021 draft regulations** recommending '**traffic light**' color-coded and mandatory warning labels, instead opting for the star system due to **industry lobbying**.
- **Weak Regulatory Framework for Advertising:** India's laws aimed at curbing **misleading** or surrogate **advertising of HFSS/UPFs**, are largely ineffective.
 - The **Consumer Protection Act (2019)** deems it "**misleading**" if a product hides important information, but **FSSAI does not mandate nutritional disclosure in advertisements**.
 - Despite recommendations from the **National Multisectoral Action Plan (2017)** to amend these laws and restrict HFSS food ads, no regulatory action has been taken.

Key UNICEF Recommendations for Improving Child Nutrition

- **Protect Breastfeeding & Infant Feeding:** Implement the **International Code of Marketing of Breast-milk Substitutes** (aims to stop the aggressive and inappropriate marketing of breast-milk substitutes), restrict digital marketing, and end promotion of **unhealthy infant foods**.
- **Mandatory Legal Measures:** Enforce laws on school food standards, food marketing restrictions, clear labelling,

taxes on unhealthy foods, and reformulation to cut harmful ingredients.

- **Improve Access to Nutritious Foods:** Redirect subsidies and incentives towards healthy foods, promote local production, fortify staples, and ensure safe drinking water in schools and communities.
- **Safeguard Policymaking:** Exclude ultra-processed **food industry actors from policy processes**, introduce **conflict-of-interest safeguards**, and mandate transparency on lobbying.
- **Promote Behaviour Change:** Empower families and communities with awareness campaigns, highlight the harms of ultra-processed diets, and build public support for strong laws.
- **Strengthen Social Protection:** Expand food, cash, and voucher transfers; support affordable childcare, parental benefits, and labour market programmes to ensure access to healthy diets.

India's SDG 3 Progress

India has achieved its best-ever position in the **Sustainable Development Goal (SDG) Index 2025**, ranking **99th** out of 167 countries, up from **109** in 2024. The rise reflects progress in **infrastructure** and **basic services**.

- However, challenges remain in achieving **SDG 3-Good Health and Well-being**, with persistent **health disparities**, especially in **rural** and **tribal areas**.

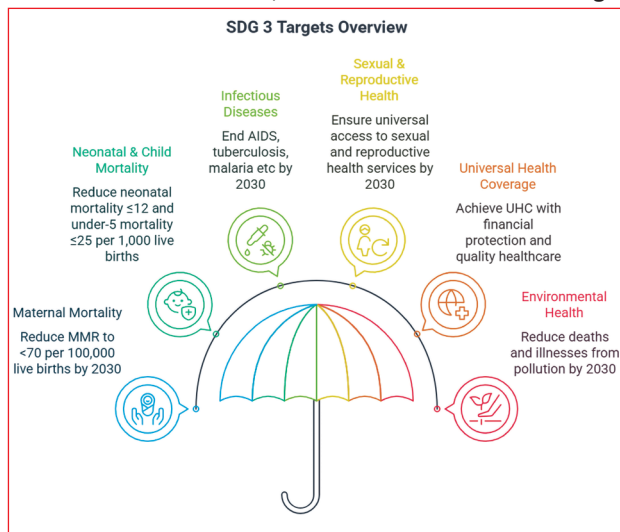
Status of India's Progress on SDG 3

- **Maternal Health:** The **maternal mortality ratio (MMR)** stands at **97 deaths per 100,000 live births**, far from the target of **70**.
- **Child Mortality:** The **under-five mortality rate** is **32 deaths per 1,000 live births**, against a target of **25**.
- **Life Expectancy:** The **average life expectancy** is currently **70 years**, falling short of the **73.63-year target**.
- **Financial Burden:** **Out-of-pocket healthcare expenditure** remains a **heavy burden** at **13% of total consumption**, nearly double the target of **7.83%**.
- **Immunisation:** While high at **93.23%**, **immunisation coverage** has not yet achieved the **universal target of 100%**.

Reasons for Gaps in Achieving SDG 3 Targets

- **Access Issues:** **Poor health infrastructure**, especially in **rural areas**, and **economic barriers** prevent many from accessing **quality healthcare**.
- **Non-Economic Factors:** Challenges such as **poor nutrition**, **inadequate sanitation**, and **unhealthy lifestyle choices** contribute significantly to the **disease burden**.

- **Socio-Cultural Barriers:** Cultural practices and stigma, particularly around **mental** and **reproductive health**, often deter **communities** from seeking available **medical services**.
- **Double Burden of Disease:** India continues to battle **communicable diseases** such as **Malaria**, **Dengue**, and **Leprosy**, while the rise of **non-communicable diseases (NCDs)**—including **diabetes**, **cardiovascular diseases**, places additional strain on the **health system**.
- **Covid-19 Pandemic Disruption:** It diverted **resources** from **immunization**, **maternal care**, and **disease control**, leading to delayed **diagnoses**, interrupted **treatment**, fewer **institutional deliveries**, and setbacks in **vaccine coverage**.



Suggestions

- **Universal Health Insurance:** Implement **universal health insurance** to **cut out-of-pocket costs** and **enhance equitable healthcare access**.
- **Strengthening PHCs & Digital Health:** Strengthen **Primary Health Centres (PHCs)** for **early disease detection** and use **telemedicine** and **digital records** to **expand access** in **remote areas**.
- **School Health Education:** Introduce a **structured health education curriculum** in schools covering **nutrition**, **hygiene**, **reproductive health**, **road safety**, and **mental well-being**.
 - E.g., **Finland** reduced **cardiovascular deaths**, and **Japan** improved **hygiene** and **longevity** through **school health education**.
- **Cross-Sectoral Convergence:** Strengthen coordination among **Ministry of Health**, **Women and Child Development**, **Jal Shakti**, and **Environment** for **integrated nutrition**, **water and sanitation**, **environmental health**, and **healthcare**.
 - Empower **Panchayati Raj Institutions** and **Urban Local Bodies** to manage **health initiatives** and conduct **social audits** for **accountability**.

- **Accelerating the implementation of Schemes:** Accelerate the implementation of schemes like **Ayushman Bharat (Rs 5 lakh health cover per family)**; **Poshan Abhiyaan** (reduce **stunting**, **under-nutrition**), **Mission Indradhanush** (child immunization), and **LaQshya** (improve **labour room** and **maternity care quality**).

Empowering Women in Agriculture

As per the **Periodic Labour Force Survey (PLFS) 2023-24**, women's participation in agriculture has **increased significantly**, however, **nearly half** of them continue to remain **unpaid**, reflecting **deep-rooted gender disparities** in farm employment.

Status of Women in Agriculture Across India

- **Feminisation of Agriculture:** Women now make up over **42%** of India's **agricultural workforce**, a **135%** increase in the past decade. **Two out of three rural women** work in **agriculture**.
- **Prevalence of Unpaid Work:** Nearly **half** of women in **agriculture** are **unpaid family workers**, rising from **23.6 million** to **59.1 million** over eight years (2017-18 to 2024-25).
- **Regional Concentration:** In states like **Bihar** and **Uttar Pradesh**, more than **80%** of **women workers** are in **agriculture**, however, over **half** remain **unpaid**.
- **Government Support:** **Mahila Kisan Sashaktikaran Pariyojana**, **Kisan Credit Cards**, and **Self-Help Groups** collectively empower **women farmers** through **skill development**, **access to formal credit**, **sustainable agriculture**, and **strengthened collective bargaining**.

Factors Leading to Feminisation of Agriculture in India

- **Male Out-Migration:** Men are migrating to **cities** or shifting to more **lucrative rural jobs** (**construction**, **services**, **transport**, **government**), leaving **women** to **manage** and **work** on **family farms**.
- **Growth of the Contract Farming:** Sectors like **floriculture**, **horticulture**, and **tea/coffee plantations** prefer **women** for **labor-intensive tasks**, viewing them as **reliable**, **skilled**, and willing to accept **lower wages**.
- **Patriarchal Norms:** **Society** expects **women** to handle **home** and **light farm work**, treating their **farm labor** as part of **household duties** or **assisting men**.
- **Limited Alternative Opportunities:** **Lower literacy**, **restricted mobility**, and **social norms** limit **women's non-farm employment**, making **agriculture** one of the few **acceptable** and **accessible livelihoods** in **rural areas**.

Systemic Barriers Limiting Women's Progress in Agriculture (W-O-M-E-N)

- **W - Wage Discrimination:** Women in India earn **20-30%** less than men, highlighting **gender wage gaps** and **economic inequality**, which limit **economic empowerment**.

- **O - Omission from Decision-Making:** Agricultural extension officers are predominantly male, excluding women from knowledge on seeds, pesticides, and sustainable practices, while their opinions are often overlooked in Gram Panchayats and farmer cooperatives.
- **M - Machinery and Tool Mismatch:** Farm machinery such as tractors, harvesters, and threshers is designed for male physiques, while women often lack the strength, training, or financial means to operate or access it.
- **E - Entrenched Domestic Double Burden:** Restricted mobility and time poverty from domestic chores, and childcare limit women's access to markets, skill development, and community participation.
- **N - Negation of Land and Identity Rights:** Women own only 13-14% of land holdings, and without land titles, they are seen as cultivators rather than farmers, limiting access to credit, government schemes, and independent decision-making.

Measures to Ensure the Empowerment of Women Farmers in India (G-R-O-W)

- **G - Guarantee Market Access:** Free Trade Agreement (FTAs) like the one with the UK, expected to raise agricultural exports by 20%, should focus on women-intensive sectors such as tea, spices, and dairy, and support women in exporting premium products like organic foods and GI-tagged goods, using their traditional knowledge.
- **R - Resource Rights and Reforms:** Promote joint or individual land ownership for women to enhance access to credit, insurance, and government support, and systematically scale proven women-led Farmer Producer Organizations (FPOs) and SHGs to achieve economies of scale.
- **O - Open Digital Gateways:** Scale up digital platforms like e-NAM, promote voice-first AI like BHASHINI, Jugalbandi, and Digital Sakhi for digital and financial literacy.
- **W - Well-being and Social Support:** Provide creche facilities near farms, water supply, and clean energy to reduce women's time poverty, while using media campaigns and awards to brand women farmers as role models.

Rising Cancer Burden in India

According to the latest *Global Burden of Disease* estimates by *The Lancet*, cancer incidence and mortality are on the rise in India, in contrast to the global trend of decline, with an estimated 15 lakh new cases and over 12 lakh deaths reported in 2023.

Key Findings of the Global Burden of Disease

- **Rising global caseloads:** Global cancer incidence declined from 220.6 per 100,000 in 1990 to 205.1 in 2023, and is projected to reach 192.9 in 2025. However, the absolute number of cancer cases and deaths is expected to rise sharply by 2050 due to population growth and aging.
- **Trends in Cancer Incidence:** India's cancer incidence rate rose from 84.8 (1990) to 107.2 (2023) per 100,000, and the death rate increased from 71.7 to 86.9 per 100,000 in the same period.
- **Disproportionate Burden on LMICs:** The study warns that low- and middle-income countries (LMICs) like India are projected to account for over half of new cancer cases and two-thirds of deaths.
- **Modifiable Risk Factors:** Around 42% of global cancer deaths are linked to modifiable risk factors like tobacco, alcohol, unhealthy diets, and infections, with India's share possibly as high as 70%.
- **Future Prediction:** It forecasts 30.5 million new cancer cases globally and a 75% increase in deaths to 18.6 million by 2050. In India, the major causes of cancer mortality are breast, lung, oesophagus, oral, cervical, stomach, and colon cancers.

Factors Contributing to India's Growing Cancer Burden (C-A-N-C-E-R)

- **C - Changing Demographics (Ageing):** Rising life expectancy and population in India increase older adults at cancer risk, raising the total cases even if rates per 100,000 stay stable.
 - Longer life expectancy has led to a higher prevalence of non-communicable diseases, including cancer.
- **A - Adoption of Unhealthy Lifestyles:** High tobacco use, unhealthy diets, sedentary lifestyles, and alcohol consumption in India increase risks of lung, mouth, throat, esophagus, pancreatic, and liver cancers.
- **N - National Health System Deficiencies:** Late-stage diagnosis (III or IV), shortage of cancer specialists (oncologists), radiotherapy machines, and catastrophic health expenditure lead to delayed treatment, poor outcomes, and higher cancer deaths.
- **C - Carcinogenic Environmental Exposure:** High outdoor air pollution (PM2.5, Class I carcinogen), indoor air pollution from solid fuels, and industrial and chemical exposure increase the risk of lung cancer.
- **E - Economic Hardship from Treatment:** The high cost of cancer treatment—surgery, chemotherapy, and radiotherapy—limits access to care, causing many to delay or skip treatment, which increases cancer cases and deaths.

- **R - Rising Infection-Linked Cancers:** Infections contribute significantly to **cancer burden**, including **Human Papillomavirus (HPV) virus** (cervical cancer), **Hepatitis B and C virus** (liver cancer), and **H. Pylori** (stomach cancer).

India's Initiatives for Cancer Control
■ National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke ■ National Cancer Grid ■ National Cancer Awareness Day ■ HPV Vaccine

Measures to Address India's Growing Cancer Burden (C-U-R-E)

- **C – Control Carcinogens:** Strengthening the **Cigarettes and Other Tobacco Products Act (2003)** and raising **tobacco taxes** can curb cancer by **reducing tobacco use**, **detering new users**, and **generating funds** for **prevention**, **awareness**, and **treatment programs**.
- **U – Universal Vaccination & Screening:** Ensure **HPV (cervical cancer)** and **Hepatitis B (liver cancer)** **vaccinations**, and regulate **occupational carcinogens** like **asbestos** and **pesticides**.
 - Strengthen **screening programs** by integrating **Primary Health Centre (PHCs)** and training **ASHA** and **ANM workers** for **early detection and referrals**.
- **R – Robust Treatment Infrastructure:** Reduce **out-of-pocket expenditure** by strengthening **Ayushman Bharat** to cover all cancer care and expand **public sector capacity** with more **Tertiary Care Cancer Centres** and advanced oncology departments.
- **E – Evidence & Research:** Expand **National Cancer Registry Programme (NCRP)** for accurate cancer data, promote

indigenous research, and implement a robust **National Cancer Control Plan** with clear targets.

India's Vital Statistics Report 2023

The Registrar General of India (RGI) released the “Vital Statistics of India based on Civil Registration System (CRS)” report for 2023. The report highlighted a decline in birth registrations and a marginal increase in death registrations.

Findings of the Vital Statistics Report 2023

- **Birth and Death Trends;** India registered **2.52 crore births in 2023**, about **2.32 lakh fewer** than in 2022, indicating a slight decline in the overall birth rate.
 - The number of **registered deaths stood at 86.6 lakh in 2023**, a **minor increase** from **86.5 lakh in 2022**.
 - There had been a **sharp spike in 2021**, with **1.02 crore deaths** - an excess of nearly **21 lakh deaths** from 2020, coinciding with the second wave of COVID-19.
- **Sex Ratio at Birth (SRB):** SRB refers to the number of female births per 1,000 male births.
 - **Lowest SRB:** Reported in **Jharkhand (899)**, followed by Bihar (900), Telangana (906), Maharashtra (909), Gujarat (910), Haryana (911), and Mizoram (911).
 - **Highest SRB:** **Arunachal Pradesh** led with a sex ratio of **1,085 females per 1,000 males**, followed by Nagaland (1,007), Goa (973), Ladakh and Tripura (972 each), and Kerala (967).
- **Institutional Births:** About **74.7% of total registered births in 2023** occurred in health institutions, reflecting gradual improvement in maternal and neonatal healthcare access. **Overall registration of births** for the year 2023 stood at **98.4%**
 - **Timely registration** refers to **births registered within 21 days** of occurrence.

Reasons for the Skewed Sex Ratio	Suggestions
■ Gender Bias: Cultural preference for males leads to unequal access to education, healthcare, and survival opportunities for girls. ■ Son Preference: As future caretakers and economic supporters, reinforcing male child preference. ■ Social Practices: Dowry and patriarchal customs make daughters a perceived financial burden. ■ Rising Income Paradox: Higher income & literacy increase access to sex-selective technologies, worsening the sex ratio.	■ Behavioural Change: Transform social attitudes through campaigns like Beti Bachao Beti Padhao to promote gender equality. ■ Youth Sensitization: Use reproductive health education & ASHA workers in rural areas to promote equitable practices. ■ Law Enforcement: Strict implementation of Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 and including ultrasound machines under Drugs and Cosmetics Act is a welcome step.

Registrar General of India
■ RGI was founded in 1961 by the Government of India under the Ministry of Home Affairs. ■ It arranges, conducts and analyses the results of the demographic surveys of India including the Census of India and Linguistic Survey of India. ■ The position of Registrar is usually held by a civil servant holding the rank of Joint Secretary.

Civil Registration System (CRS)

- CRS in India is the **unified process** of continuous, permanent, compulsory and universal recording of the vital events (births, deaths, stillbirths) and characteristics thereof.
- The data generated through a complete and up-to-date CRS is **essential for socio-economic planning**.
- Registration of Births and Deaths in India is mandatory with the enactment of **Registration of Births and Deaths (RBD), Act 1969** and is done as per the place of occurrence of the event.
- According to the 2020-21 annual report of the Ministry of Home Affairs (MHA), the Central government is planning to **revamp the Civil Registration System (CRS)** to enable the registration of birth and death in real-time with minimum human interface that will be independent of location.

India’s Fight Against Leprosy

India’s leprosy prevalence rate has declined from **57.2 per 10,000 in 1981 to 0.57 in 2025**, marking a 99% reduction.

- The **National Leprosy Eradication Programme (NLEP)** has now adopted the **National Strategic Plan and Roadmap for Leprosy (2023-2027)**, aiming to **interrupt transmission and achieve zero indigenous cases by 2030**.

Leprosy

- **Leprosy (Hansen’s disease)** is a **chronic infectious disease** caused by *Mycobacterium leprae*. It affects the **skin, nerves, eyes, and respiratory tract**, leading to **ulcers, deformities, and disability** if untreated.
- It spreads through **droplets from the nose and mouth** during **close contact with untreated individuals**.
- Leprosy is a **neglected tropical disease (NTD)** which still occurs in more than 120 countries, with around 200 000 new cases reported every year.

India’s Battle Against Leprosy Since Independence

- **Early Efforts:**
 - **1954-55:** Launch of the **National Leprosy Control Programme (NLCP)** using *Dapsone monotherapy* (antibiotic medication).
 - **1983:** NLCP transitioned to the **National Leprosy Eradication Programme (NLEP, a Centrally Sponsored Scheme)** after WHO endorsed **Multi Drug Therapy (MDT)** in 1982.
 - ❖ The **introduction of MDT in India in 1983 revolutionized leprosy treatment**, with therapy provided **free of cost to patients** through WHO support.
- **Key Outcomes Under NLEP:**
 - **Elimination Achieved:** India attained **national leprosy elimination status** (prevalence rate **<1/10,000**) in 2005 and sustained it.
 - ❖ As of 2025, **PR** is 0.57 nationally, and **Grade 2 disability** has declined to 1.88 per million.
 - **Reduced Transmission and Disability:** **Child cases** among new detections fell from 9.04% (2014-15) to 4.68% (2024-25).

- ❖ **New case detection rate** dropped from 9.73 to 7.0 per 100,000 in the same period.
- ❖ **Post Exposure Prophylaxis (PEP) coverage** among eligible contacts improved to 92%.
- **National Strategic Plan (NSP) 2023-2027:** The **NLEP** is developing a new **strategy** aligned with the **Global Leprosy Strategy 2021-2030** and the **WHO Neglected Tropical Diseases Roadmap**, aiming to **end leprosy transmission by 2030** and recover from the **Covid-19 impact**.
 - It outlines the strategic interventions and lays out a clear-cut roadmap to achieve the goal of interruption in transmission of leprosy by 2027.

Other National and Global Initiatives to Eliminate Leprosy At National Level

- **Nikusth 2.0 Portal:** Digitized system for patient tracking and district monitoring.
- **National AMR Surveillance for Leprosy (2023):** Tracks drug resistance trends.
- **Integration with Ayushman Bharat, Rashtriya Bal Swasthya Karyakram (RBSK) and Rashtriya Kishore Swasthya Karyakram (RKSK):** Ensures screening for all age groups.
- **PVTG Tagging:** Inclusion of **Particularly Vulnerable Tribal Groups** under **PM-JANMAN**.
- **Special Monitoring:** For **121 districts** with higher prevalence (>1/10,000).

Global Collaboration

- **WHO:** India-WHO collaboration ensures **free MDT supply, technical support, and programme monitoring**. WHO also supported India’s **Modified Leprosy Elimination Campaigns (MLECs)**, **Special Action Projects** for remote areas, and the **COMBI (Communication for Behavioural Impact)** pilot in Bihar.
- **World Bank:** Funded **Information, Education, and Communication (IEC)** and community-based interventions (1993-2004).

Six-Pocket Syndrome

A *Kaun Banega Crorepati* episode featuring a child’s overconfident behaviour towards Amitabh Bachchan has sparked debate on overindulgent parenting among Generation Alpha (people born from 2010-2024/25), which experts link to the **“Six-Pocket Syndrome.”**

Six-Pocket Syndrome

- **About:** The Six-Pocket Syndrome, a term from **China's one-child policy era (1979-2015)**, describes how **one child was doted on by six adults** (two parents and four grandparents) who poured all their affection and resources into them.
 - This overindulgence fostered **entitlement and a sense that every wish deserves to be fulfilled**, leaving little room for discipline, patience, or empathy.
- **Indian Context:** In India, the Six-Pocket Syndrome is common in **urban middle-class families**, where working parents and indulgent grandparents shower children with attention, gifts, and leniency.
 - This overcompensation fosters a belief in **the right to demand and be rewarded instantly**, without understanding effort, boundaries, or consequences.
- **Sociological Perspective:** Reflects the shift from a **responsibility-based society** (where children contribute and adapt) to a **right-based society** (where children feel entitled to comfort and attention).
 - **Erving Goffman's "Dramaturgical Perspective":** Explains how modern children, shaped by family and media, learn to **perform roles that attract validation rather than build character**.
 - ❖ Childhood becomes a stage for social approval rather than moral learning.
 - **Zygmunt Bauman's "Liquid Modernity":** States that society now prioritises instant gratification, fluid identities, and social visibility over long-term emotional grounding.
- **Psychological and Behavioural Effects:**
 - **Low frustration tolerance:** The child cannot handle rejection, denial, or criticism.
 - **Reward-demanding behaviour:** They associate love with material rewards and expect instant gratification.
 - **Emotional immaturity:** Limited capacity for patience, empathy, or self-control.
 - **Dependency and fragility:** The child struggles with autonomy and resilience when facing failure or peer pressure.
 - ❖ In severe cases, such children may exhibit **tantrums, aggression, or anxiety** when denied their wishes.
 - **Long-term Consequences:** Children raised under the Six-Pocket Syndrome often develop **ego-centric behaviour**, which can strain relationships.
 - ❖ Over time, this may increase their vulnerability to **aggression, substance abuse, and mental health challenges**.

Challenges Related to Generation Alpha

- **Impatience and Instant Gratification:** Growing up in a digital world of one-click solutions and fast content, Generation Alpha struggles with **delayed gratification**.
 - They expect quick results and often lack **patience, persistence, and tolerance for failure**.
- **Overconfidence and Entitlement:** Constant validation both at home and online breed **excessive self-assurance without competence**.
 - This results in **low humility**, difficulty accepting criticism, and unrealistic self-perception.
- **Erosion of Behavioural Norms:** With social interactions increasingly mediated through screens, children show declining **respect for elders, authority, and social etiquette**.
 - Exposure to unfiltered online content normalises **informality and irreverence** in language and conduct.
- **Emotional Fragility and Mental Health Issues:** Overprotection, combined with constant comparison on social media, weakens emotional resilience.
 - Rising levels of **anxiety, irritability, and self-esteem issues** are evident among school-age children.
- **Declining Social and Empathic Skills:** Reduced face-to-face interaction limits their ability to **read emotions, negotiate differences, or handle conflict**.
 - Virtual connections often replace real friendships, creating **emotional isolation**.
- **Consumerism:** Influencer culture promotes materialism and a **performative lifestyle**, where self-worth depends on visibility and possessions.
- **Overdependence on Technology:** Early digital exposure leads to **reduced creativity, shorter attention spans, and addictive behaviour**.
 - The ability to think critically or solve problems independently is gradually diminishing.
- **Data and Privacy Risks:** Generation Alpha is the **first fully datafied generation**, with their information collected from birth.
 - This raises legal and ethical concerns under the **Digital Personal Data Protection Act, 2023** and the **United Nations Convention on the Rights of the Child (UNCRC)** provisions on child rights.

Corrective Model of Parenting and Society for Generation Alpha

- **Link Rewards to Effort, Not Entitlement:** Children should **earn privileges through achievements or responsibilities**, preventing the "right-to-reward" mindset seen in the Six-Pocket Syndrome.

- Supported by **UNCRC article 5**, which emphasises guidance and direction in line with the child's evolving capacities.
- **Instil Emotional Resilience:** Exposure to **controlled failure, constructive criticism, and problem-solving** builds patience, adaptability, and emotional regulation.
 - India's **National Policy for Children (2013)** encourages resilience-building programmes in schools and communities.
- **Promote Responsibility:** Assign **chores, peer group activities, and community engagement** to teach empathy, cooperation, and civic responsibility which aids in development of social responsibility and respect for societal values.
- **Balance Affection with Boundaries:** Families must prevent overindulgence and impulsive entitlement. Extended family support should **reinforce discipline rather than compensate for indulgence**.
 - Indian legal frameworks like the **Juvenile Justice (Care and Protection of Children) Act, 2015**, stress the role of family in **guiding children's moral development**.
- **Regulate Digital Exposure:** Monitor **online activity, social media use, and reality TV exposure**.
 - **Information Technology Rules, 2021** and **National Commission for Protection of Child Rights (NCPCR) guidelines** mandate protection of children from cyberbullying, exploitative content, and online harassment.
 - International practices, like **UNICEF's Guidelines for Industry on Child Online Protection**, encourage age-appropriate exposure and digital literacy.
 - Schools, communities, and digital platforms must work collaboratively to create **safe, nurturing, and disciplined environments**.

Rangarajan Poverty Line

Economists from the **Reserve Bank of India's (RBI) Department of Economic and Policy Research** published a paper in which they 'updated' the **Rangarajan Poverty Line** for 20 major states of India, using data from the **Household Consumption Expenditure Survey (HCES) 2022-23**.

Key Highlights of RBI's Paper on Updated Rangarajan Poverty Line

- **Biggest Improvements:** **Odisha and Bihar** showed the largest decline in poverty levels since 2011-12, with rural poverty in Odisha falling from 47.8% to 8.6% and urban poverty in Bihar falling from 50.8% to 9.1%.
- **Smallest Declines:** **Kerala and Himachal Pradesh** showed the least decline in poverty percentages because their poverty levels were already low.

- **Rural and Urban Extremes:** In 2022-23, rural poverty was lowest in Himachal Pradesh (0.4%) and highest in Chhattisgarh (25.1%). Urban poverty was lowest in Tamil Nadu (1.9%) and highest in Chhattisgarh (13.3%).
- **Consumption Pattern Changes:** The study acknowledges that consumption patterns changed between 2011-12 and 2022-23, suggesting that poverty baskets and lines may need further updates in the future.

Poverty

- **Poverty:** According to the **World Bank**, poverty is "**pronounced deprivation in well-being**." The poor are those who do not have sufficient income or consumption to rise above an adequate minimum threshold.
 - According to NITI Aayog, poverty is measured by setting a **poverty line** (the minimum expenditure needed to meet basic socially acceptable needs) and the **poverty ratio** denotes the share of the population living below this line.
 - The World Bank raised the **International Poverty Line from USD 2.15/day (2017 Purchasing power parity (PPP)) to USD 3.00/day (2021 PPP)**.
- **Poverty Estimation in India:**
 - **Pre-Independence:** Efforts to estimate poverty began with **Dadabhai Naoroji's** book "*Poverty and Un-British Rule in India*", followed by the **National Planning Committee (1938)** and the **Bombay Plan (1944)**, which discussed minimum living standards and income levels.
 - **Post-Independence:** The **Planning Commission (1962)** initiated an official poverty assessment.
 - ❖ Later committees like **Alagh Committee (1979)** and **Lakdawala Committee (1993)** refined the methodology, focusing on consumption expenditure and calorie norms.
 - **Tendulkar Committee (2009):** Shifted from calorie-based norms, recommended a **uniform all-India Poverty Line Basket (PLB)**, and adopted **Mixed Reference Period (MRP)** consumption data.
 - ❖ It estimated the 2011-12 poverty line at Rs 816 (rural) and Rs 1,000 (urban) per capita per month.
 - **Rangarajan Committee (2014):** Formed after criticism of the Tendulkar method, it reverted to separate **rural and urban PLBs**, estimating Rs 972 (rural) and Rs 1,407 (urban) per capita per month.
 - ❖ However, the government did not adopt its recommendations officially.
- **Multidimensional Poverty Index (MPI):** Launched in 2010 by **United Nations Development Programme** and **Oxford Poverty & Human Development Initiative (OPHI)**, the MPI measures poverty beyond income, considering deprivations in health, education, and living standards.

- It reflects both the proportion of poor people and the average number of deprivations they experience simultaneously.
- In **2025**, the **Global Multidimensional Poverty Index (MPI)** shows that **1.1 billion people (18.3%)** across **109 countries** live in acute multidimensional poverty, with **43.6% facing severe deprivation** in at least half of the indicators.
- **National Multidimensional Poverty Index (NMPI):** NITI Aayog uses **National Family Health Survey (NFHS)** to measure the NMPI.
 - The multidimensional poverty in India has declined from **29.17% in 2013-14** to **11.28% in 2022-23** with about 24.82 crore people escaping poverty.
 - The **Gini index** declined from **28.8 in 2011-12** to **25.5 in 2022-23**, showing reduced inequality.

Schemes Related to Poverty Alleviation in India
■ Dindayal Antyodaya Yojana -National Urban Livelihood Mission (DAY-NULM)
■ Pradhan Mantri Awas Yojana-Gramin (PMAY-G)
■ Pradhan Mantri Garib Kalyan Yojana (PMGKY)
■ Pradhan Mantri Suraksha Bima Yojana
■ National Nutrition Mission (POSHAN Abhiyaan)
■ Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA Scheme)

Global Multidimensional Poverty Index 2025

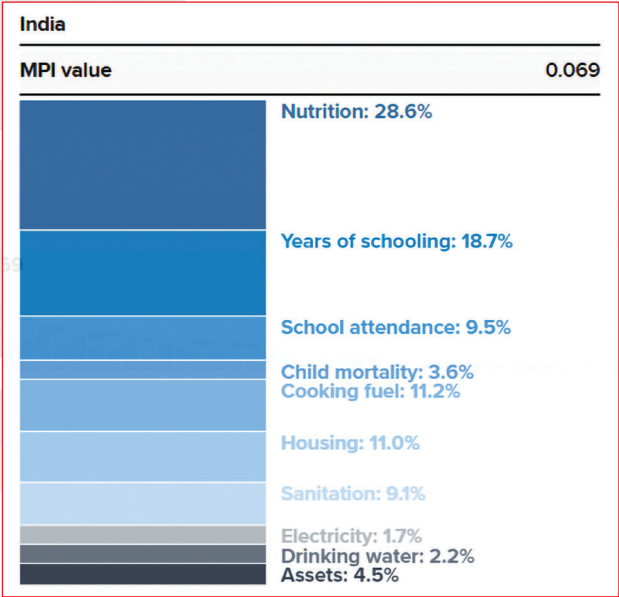
The **United Nations Development Programme (UNDP)** and the **Oxford Poverty and Human Development Initiative (OPHI)**, has published its **2025 Global Multidimensional Poverty Index (MPI)** under the title “**Overlapping Hardships: Poverty and Climate Hazards.**”

- For the first time, it overlays **climate hazard data** with **multidimensional poverty** to assess poor people’s exposure to **climate shocks**, focusing on **high heat, drought, floods, and air pollution.**

Key Findings of the Global MPI Report 2025

- **Global Poverty Statistics:** Of **6.3 billion people** across **109 countries**, **1.1 billion (18.3%)** live in **acute multidimensional poverty**, mostly **young, rural, and in low human development countries.**
- **Multi-dimensional Poverty in India:** Poverty fell from **55.1% (2005–2006)** to **16.4% (2019–2021)**. Large areas of **India** face a severe mix of **poverty, high heat, flooding, and air pollution.**
- **Poverty and Climate Interlinkages:** **Climate shocks** are growing more frequent and intense, displacing **32 million people in 2022.** Without strong **climate mitigation**, **extreme poverty** could nearly **double by 2050.**

- **309 million poor people** live in areas with **three or four overlapping climate hazards** and **severe poverty**, facing a “**triple or quadruple burden**” with few **assets** and little **social protection.**
- **MPI Across Income Levels:** About **two-thirds (64.5%)** of the world’s poor live in **middle-income countries**, with **55.5% in lower-middle-income** and **9% in upper-middle-income** nations.
- **Common Deprivations:** Major **deprivations** include **clean cooking fuel (970 million)**, **adequate housing (878 million)**, **sanitation (830 million)**, **undernutrition (635 million)**, and **out-of-school children (487 million).**
- **Uneven Progress in MPI Reduction:** Of **88 countries** with comparable data, **76** have seen a **decline in MPI** at least once.
 - **Benin** recorded the fastest absolute reduction (**2017–2018 to 2021–2022**), followed by **Cambodia (2014 to 2021–2022)** and **Tanzania (2015–2016 to 2022).**



Multidimensional Poverty Index (MPI)

- **About:** The **MPI** is a sophisticated tool that extends beyond **income** to capture the multiple, overlapping **deprivations** faced by **poor people.**
 - Its main purpose is to complement **income-based poverty measures** (such as the **USD 3.00/day rate**) by providing a comprehensive view of **non-monetary deprivations**, enabling more **effective and targeted policy interventions.**
- **Weighting System:** The **indicators** are not all **weighted equally**, but the **dimensions** are balanced. **Health, Education, and Standard of Living** each receive **1/3** of the total **weight.**

- Each **health** and **education indicator** is weighted **1/6** (because there are 2 **indicators** per **dimension**).
 - Each **standard of living indicator** is weighted **1/18** (because there are 6 **indicators** per **dimension**).
- **Computation:**
- The **index** is built on three core **dimensions of poverty: Health, Education, and Standard of Living**. These are broken down into 10 specific **indicators**:
 - Health (2 indicators): Nutrition** (any person **under 70 years of age** is undernourished), **Child Mortality** (death of any child in the household in the past 5 years).
 - Education (2 indicators): Years of Schooling** (no household member has completed **6 years of formal education**), **School Attendance** (any child is not enrolled in school up to class 8).
 - Standard of Living (6 indicators): Cooking Fuel, Sanitation, Drinking Water, Electricity, Housing, Assets.**
- **Identification of Poor:** A person is identified as **multidimensionally poor** if their **deprivation score** is one

third (33.3%) or higher. The final **MPI value** for a **country** or **region** is a product of two critical **components** (**MPI = H × A**):

- H - Incidence of Poverty:** The proportion of the **population** who are **multidimensionally poor** (the **headcount ratio**).
- A - Intensity of Poverty:** The average proportion of **weighted deprivations** poor people experience. It answers “how poor are the poor?” on average.
- MPI values** range from 0 to 1, and higher values imply higher **poverty**.

Key Initiatives Related to Poverty Alleviation

- National Social Assistance Program (NSAP)
- Pradhan Mantri Jan Dhan Yojana
- MGNREGA Scheme
- NRLM (National Rural Livelihood Mission)
- Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
- Pradhan Mantri Mudra Yojana
- Lakhpati Didi Initiative

Key Challenges to Poverty Alleviation in India, and Ways to Address it

Key Challenges	Required Measures
■ Multidimensional Deprivations: Poverty extends beyond low income to include overlapping deficits in health (malnutrition) , education (low attainment) , and standard of living (sanitation, housing) .	■ Convergence of Welfare Schemes: Integrate programs like POSHAN Abhiyan (health), Samagra Shiksha (education), and PM Awas Yojana (housing) for a holistic approach to address all deprivations simultaneously.
■ Vulnerability to Climate Shocks: The poor, often in climate-sensitive sectors like agriculture, are disproportionately affected by floods, droughts, and heatwaves , which can wipe out gains and cause descent into poverty.	■ Promoting Climate-Resilient Agriculture & Insurance: Expand PM Fasal Bima Yojana (crop insurance), promote drought-resistant crops , and develop climate risk insurance to protect livelihoods and assets.
■ Large Informal Sector Workforce: A vast majority of the poor work in the informal economy with no job security, social safety nets, or decent wages , making them highly vulnerable to economic shocks.	■ Universal Social Security & Skill Development: Implement schemes like e-Shram and Pradhan Mantri Shram Yogi Maan-dhan for pensions, and Skill India Mission to enhance employability in formal sectors.
■ Regional & Social Disparities: Poverty is concentrated in specific regions (e.g., eastern states), among Scheduled Castes (SCs) , Scheduled Tribes (STs) , and other marginalized groups, leading to uneven development.	■ Targeted Interventions & Affirmative Action: Strengthen the Aspirational Districts Programme for backward regions and ensure effective implementation of SC/ST sub-plans and scholarships to bridge the gap.
■ Agricultural Distress: A large section of the poor are small and marginal farmers facing challenges of low productivity, debt, and lack of market access , leading to low and unstable incomes.	■ Income Support & Market Reforms: Provide direct income support through PM-KISAN , promote Farmer Producer Organizations (FPOs) for better market access, and improve infrastructure through the Agriculture Infrastructure Fund .

Kerala: First Indian State Free of Extreme Poverty

- On **1st November, 2025**, Kerala will become the first state in India to be officially declared **free from extreme poverty**.
 - According to the **World Bank**, **extreme poverty** is defined as living on less than **USD 3.00 per person per day** at **2021 purchasing power parity**.
- In Kerala, the **extreme poverty eradication programme**, launched in 2021, started with the identification of around **64,000 extremely poor families** via **ground-level surveys** evaluating deprivations in **food, health, livelihood, and shelter**.
- The government prepared **micro-plans** for each family to address both **immediate and long-term needs**, including the provision of **essential documents, housing, land, and house repair assistance**.

FACTS FOR PRELIMS

REPORTS & INDICES

Environmental Accounting on Forest 2025

MoSPI released “**Environmental Accounting on Forest – 2025**”, its 8th environmental accounts report & **1st dedicated forest accounting report under UN System of Environmental Economic Accounts (SEEA) Framework**.

- Provides forest accounts at **national (Vol. I) & state levels (Vol. II)** based on SEEA framework.

Findings	Data	Top Contributors
Physical Asset Account (2010–11 to 2021–22)	Forest cover increased by 22.50%; total: 21.76% of geographical area	Kerala, Karnataka, TN
Extent Account (2013–23)	Net increase of 3,356 sq. km in forest extent (due to reclassification & boundary adjustments)	Uttarakhand, Odisha, Jharkhand
Condition Account (2013–23)	Growing Stock (vol. of usable wood in living trees) increased by 7.32%	MP, Chhattisgarh, Telangana
Service Accounts (Ecosystem Services Valuation)	Timber & non-timber products: 0.16% of GDP (2021-22)	Maharashtra, Gujarat, Kerala
Regulating Services	Carbon retention & climate regulation: 2.63% of GDP (2021–22)	Arunachal Pradesh, Uttarakhand, Assam

- UN SEEA integrates economic & environmental data to **measure environment–economy linkages**.
- Developed by– **UN, European Commission & FAO** in 2012.
- **Adopted by India** in 2018.

National Household Income Survey (NHIS) 2026

MoSPI **plans to launch NHIS in Feb 2026, marking India’s first pan-India household income survey**, enabling income comparisons and analysis of income sources.

- **Purpose:** To capture living conditions, income, expenditure, and provide data for rebasing the CPI, National Accounts, and conducting poverty & hardship analysis.
 - **NSO under MoSPI** has conducted large-scale household surveys **since 1950**, including **National Sample Survey (NSS)**.
- **Global Context:** Countries like US, UK, China & Malaysia already conduct similar surveys.

AWARDS & HONOURS

Nobel Prize in Physics 2025

The **2025 Nobel Prize in Physics** has been awarded by the **Royal Swedish Academy of Sciences** to **John Clarke, Michel Devoret, and John Martinis** for their discovery of **macroscopic quantum mechanical tunnelling and energy quantisation in an electric circuit**.

- Their work has paved the way for **superconducting circuits that could form the backbone of practical quantum computers and sensors**, marking a major milestone in quantum technology.

Highlights of the 2025 Nobel Prize in Physics

- **Macroscopic Quantum Tunnelling:** The laureates extended quantum tunneling from **microscopic scales to macroscopic systems**, showing that **large, visible systems (like superconducting circuits)** could exhibit quantum behaviors like tunneling and energy quantization.
 - They used **superconducting materials** and created a **Josephson junction** (superconducting system), where billions of **Cooper pairs** acted as a collective quantum object.
 - ❖ When cooled to near absolute zero, they observed that the system’s electrical state **could “tunnel” through energy barriers**, exhibiting abrupt transitions, confirming quantum behavior over classical.

■ Significance:

- **Quantum Computing:** Enabled the development of superconducting qubits and paved the way for advancements in quantum sensing and simulation.
- **Cryptography Implications:** Quantum computers could break encryption systems that rely on classical computation limits.
- **Global Relevance:** Countries, including India, are investing heavily in quantum technology; India's **National Quantum Computing Mission** aims to develop functional quantum computers by 2031.

Quantum Tunnelling

- **About:** Quantum tunneling refers to a phenomenon where **particles can pass through barriers that**, according to classical physics, would be impossible.
 - Quantum tunneling occurs due to **wave-particle duality**, where particles behave as both waves and particles. When encountering a barrier, the particle's wave function extends beyond it, giving a probability of the particle appearing on the other side.
- **Applications of Quantum Tunnelling:**
 - **Scanning Tunnelling Microscope (STM):** Uses quantum tunnelling to map surfaces at the atomic level.
 - **Flash Memory:** Found in USB drives and SSDs. Data is stored in floating-gate transistors where electrons tunnel onto or off the gate.
 - **Josephson Junctions:** Made of two superconductors separated by a thin insulator. Electrons tunnel across the barrier, creating a precise current-voltage relationship.
 - ❖ **Josephson Junctions** are used in superconducting quantum computers and **Superconducting Quantum Interference Devices (SQUIDs)** for ultra-sensitive measurements.
 - **Quantum Computing:** Quantum tunnelling enables **qubits to exist in multiple states and transition** between them. Essential for quantum algorithms that outperform classical computers in specific tasks.
 - **Nuclear Fusion:** In stars and experimental reactors, tunnelling allows atomic nuclei to overcome repulsive forces and fuse. This process powers the Sun and holds potential for limitless clean energy.

Nobel Prize in Physiology or Medicine 2025

2025 Nobel Prize in Physiology or Medicine was awarded to—

- **Shimon Sakaguchi (Japan):** Discovered regulatory **T cells (Tregs)** in 1995, showing they prevent autoimmune attacks.

- **Mary Brunkow & Fred Ramsdell (US):** Identified in 2001 that mutations in **FOXP3 (Forkhead Box Protein)** gene cause **autoimmune disease (IPEX)** in humans and mice.
 - **Combined Contribution:** Sakaguchi showed FOXP3 gene controls Treg development, explaining how immune system maintains peripheral tolerance.
 - **Significance:** Targeting or boosting Tregs enhances immune response against cancer, prevents self-attack, and reduces organ rejection.

In 1968, Indian Nobel Laureate Har Gobind Khorana, along with Marshall Nirenberg and Robert Holley, was awarded Nobel Prize for their work on the genetic code and its role in protein synthesis.

Human Immune System

- | | |
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| <ul style="list-style-type: none"> ■ Types: <ul style="list-style-type: none"> ● Innate Immunity: Rapid, non-specific defense using barriers (skin, mucous membranes), phagocytes, and inflammation. ● Adaptive Immunity: Targeted, specific defense with memory for quicker responses upon re-infection. ■ Key Elements: <ul style="list-style-type: none"> ● T-cells (type of WBCs): Recognize & destroy infected cells. ● B-cells: Produce antibodies (proteins) to neutralize foreign antigens. | <ul style="list-style-type: none"> ■ Immune Tolerance: Prevents the immune system from attacking body's own cells. <ul style="list-style-type: none"> ● Central Tolerance: Eliminates self-reactive cells in bone marrow and thymus. ● Peripheral Tolerance: Prevents activation of remaining self-reactive cells in tissues. ■ Regulatory T cells: Maintain tolerance by suppressing immune responses, preventing autoimmune diseases (e.g., rheumatoid arthritis, type 1 diabetes, multiple sclerosis). |
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Nobel Prize in Literature 2025

Nobel Prize in Literature for 2025 is awarded to **László Krasznahorkai**, for his compelling and visionary oeuvre that, in the midst of apocalyptic terror, reaffirms the power of art.

- **László Krasznahorkai** is a Hungarian novelist and screenwriter, **known for postmodern, dystopian, and melancholic novels.**
- **Famous Works—***Satantango, The Melancholy of Resistance, War & War, Seiobo There Below, The Last Wolf, The World Goes On.*
- **Achievements—**Winner of 2015 Man Booker International Prize, **shortlisted for the 2018 Man Booker International Prize** (*The World Goes On*).

- **Rabindranath Tagore** became the first non-European to win the Nobel Prize in Literature in 1913 for '*Gitanjali*'.
- India's celebrated novelist **Amitav Ghosh** was among the contenders for 2025 Nobel Prize in Literature.

Nobel Prize in Chemistry 2025

The **Royal Swedish Academy of Sciences** has decided to award the **Nobel Prize in Chemistry 2025** to **Susumu Kitagawa (Japan)**, **Richard Robson (Australia)**, and **Omar Yaghi (US)** for their groundbreaking work in creating **Metal-Organic Frameworks (MOFs)**.

Creation of Metal-organic Frameworks (MOFs):

- **Richard Robson:** He was among the first to design **3D structures** by combining metal ions (like copper) with organic molecules to form strong, interconnected frameworks.
 - He showed that it is possible to **make materials with big spaces inside**, which could trap molecules, which laid the groundwork for the creation of **porous materials**.
- **Susumu Kitagawa:** Building on Robson's work, Kitagawa discovered that porous structures could not only remain stable but **also expand and contract based on surrounding gases or chemicals**.
 - This breakthrough made them adaptable for **gas capture (e.g., carbon dioxide) and energy storage**.
- **Omar Yaghi:** He coined the term **Metal-Organic Frameworks (MOFs) for porous structures** and developed **reticular chemistry** (systematic approach to assembling metal ions and organic molecules into large, ordered structures).
 - **Metal-Organic Frameworks (MOFs)** are a class of **crystalline materials made by linking metal ions with organic molecules**. They form **porous, sponge-like structures with tiny, well-organized holes (pores)** that can trap, store, or filter gases and chemicals.
 - Omar Yaghi showed that MOFs could be rationally designed for new properties.

Significance of MOFs

- **Water harvesting:** MOFs can extract water from desert air.
- **Carbon capture:** Certain MOFs can selectively attract and store carbon dioxide, helping combat climate change.
- **Storage of toxic gases:** MOFs can safely trap harmful chemicals for later use or disposal.
- **Custom-designed Chemical Processes:** MOFs can be engineered for specific chemical reactions or storage needs, thanks to their highly customizable structures.

Indian Nobel Laureate in Chemistry: In 2009, **Venkatraman Ramakrishnan (India)**, along with **Thomas A. Steitz (US)** and **Ada E. Yonath (Israel)**, was jointly awarded the **Nobel Prize in Chemistry** "for studies of the structure and function of the ribosome."

Nobel Peace Prize 2025

Maria Corina Machado won the 2025 Nobel Peace Prize for promoting democratic rights and a peaceful transition from dictatorship to democracy in Venezuela.

- Known as **"Iron Lady of Venezuela"** for her stand against authoritarianism
- **Founded Atenea Foundation (1992)** & co-founded **Súmate** (for election monitoring)
 - Advocated **"ballots over bullets"** for peaceful civic action

- **Nobel Peace Prize:** Awarded since **1901**; focus– from peace movement pioneers to arms control, democracy, human rights, and now climate and environmental issues.
- **Indian Laureates:** **Mother Teresa (1979)**; **Kailash Satyarthi (2014)** – shared with **Malala Yousafzai**

Nobel Prize in Economics 2025

- | | |
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| <ul style="list-style-type: none"> ■ Joel Mokyr: Received half the prize; identified prerequisites for sustained growth through technological progress. <ul style="list-style-type: none"> ● Used historical data to show why continuous technological innovation is vital for economic growth. | <ul style="list-style-type: none"> ■ Philippe Aghion & Peter Howitt: Shared the other half of the prize; developed a mathematical model describing "creative destruction". <ul style="list-style-type: none"> ● Explained how new technologies replace outdated ones, driving sustained economic growth. |
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Significance

- Explains consistent global economic growth **over the past two centuries**.
- Challenges the assumption that growth is automatic; stresses the need to maintain **innovation-driven mechanisms**.

Nobel Prize in Economic Sciences: Established in **1968** by **Sveriges Riksbank** on its 300th anniversary; awarded by the **Royal Swedish Academy of Sciences**.

IMPORTANT DAYS

118th Birth Anniversary of Bhagat Singh

The birth anniversary was observed on 28th Sept, 2025.

- **Birth:** 28 Sept 1907, **Banga, Punjab** (now Pakistan); came from a Sikh family active in **freedom struggle**.
- **Formative Event:** **Jallianwala Bagh massacre (1919)** at age 12 shaped resolve for independence; later joined **National College, Lahore** (founded by **Lala Lajpat Rai**); influenced by **Swadeshi & revolutionary ideas**.

■ Revolutionary Politics:

- **1924:** Joined **Hindustan Republican Association (HRA)** → became **Hindustan Socialist Republican Association (HSRA)** in **1928**.
- **1926:** Founded **Naujawan Bharat Sabha** for youth mobilization.
- **1929:** With **Batukeshwar Dutt**, threw bombs in **Central Legislative Assembly** against **Public Safety Bill & Trade Dispute Bill**.

- **Lahore Conspiracy Case (1928):** With **Rajguru & Sukhdev**, killed **J.P. Saunders** to avenge **Lala Lajpat Rai**; all three hanged on **23 March 1931**, Lahore Central Jail.

- **Ideology:** **Atheist, Socialist**; influenced by **Marx, Lenin, Trotsky, Bakunin**.

- **Writings:** *Why I Am an Atheist*; wrote in **Urdu & Punjabi** papers, **Kirti**, and **Veer Arjun**; often used pseudonyms **Balwant, Ranjit, Vidhrohi**.

- **Legacy:** Called **Shaheed-e-Azam**; slogan **"Inquilab Zindabad"**; **23 March–Shaheed Diwas** (to honor **Bhagat Singh, Rajguru & Sukhdev**).

Centenary of Union

Public Service Commission (UPSC)

UPSC marked its centenary on **1st Oct 2025**, completing 100 years since its establishment in 1926. Renowned for upholding **meritocracy**, UPSC has played a key role in **shaping India's civil services**.

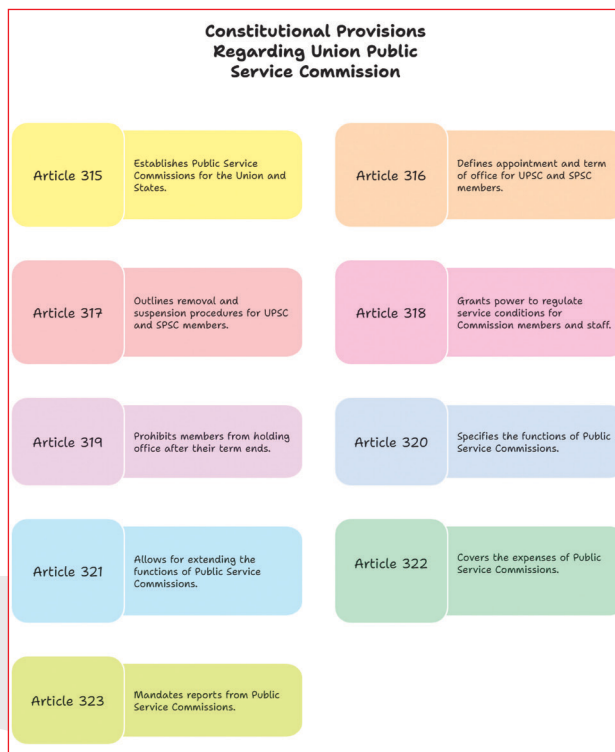
- **Historical Background:** The idea of a permanent body to regulate civil services appeared in the **1919 Constitutional Reforms (Montagu-Chelmsford Reforms)**. The **Government of India Act, 1919** allowed creation of a **Public Service Commission**.

- Following the **Lee Commission (1924)** recommendations, the **Public Service Commission** was established on **1st October 1926**, with **Sir Ross Barker** as its first Chairman.

- The **Government of India Act, 1935** transformed it into the **Federal Public Service Commission**. With the Constitution coming into force in 1950, the **FPSC** became the **Union Public Service Commission (UPSC)** under **Article 378**.

- **UPSC:** It is an **independent constitutional body** in India, established under **Articles 315–323 Part XIV Chapter II of the Constitution**, responsible for **recruiting officers to the All-India Services and Central Civil Services**.

- The UPSC conducts various examinations in accordance with the Rules of examination as notified by the Government of India in a **just, fair and impartial manner** for making a **merit based selection** and recommendation of candidates for various **Group A and Group B Services** of the Government of India.



■ Reforms by UPSC:

- **PRATIBHA Setu Initiative:** It is a **centralized online repository** of verified biodata that connects **interview-qualified candidates of the UPSC examinations**, who were not recommended for final selection, to alternate employment opportunities by making their information available to interested employers in both the public and private sectors.

Pandit Chhannulal Mishra:

Thumri Maestro Passes Away

Pandit Chhannulal Mishra, legendary Hindustani classical vocalist & doyen of **Banaras Gharana**, known for **Thumri, Dadra, Chaiti, Kajri**, died; renowned for his mastery in **Purab Ang style of Thumri**, he was honoured with **Padma Bhushan (2010) & Padma Vibhushan (2020)**.

Thumri

- Semi-classical music form of North India, emerged in **19th century Awadh** under **Nawab Wajid Ali Shah's** patronage; shifted to **Banaras** post-1856 with **Radha-Krishna** devotional themes.
- **Features:** Focus on **bhava (emotion)**, **improvisation**, not strict raga rules.
- **Influences:** Draws from **Hori, Kajri, Dadra, Jhoola, Chaiti** and other folk/semi-classical forms.

- **Forms:**
 - **Purbi Thumri** (slow, lyrical) – Banaras Gharana
 - **Punjabi Thumri** (fast, lively) – Patiala Gharana
- **Major Gharanas:** Banaras, Lucknow, Patiala

Hindustani Classical Music

- Practiced mainly in **North India**; one of the two main Indian classical music (other is **Carnatic music** from South India).
- Largely **vocal-centric**, with **Dhrupad & Khayal** (classical), while **Thumri, Dhamar, Tarana, Tappa, Qawwali & Ghazal** are **Semiclassical Hindustani** styles.

World Food Day and 80th Anniversary of FAO

On the occasion of **World Food Day** and **Food and Agriculture Organization's (FAO) 80th anniversary**, the **Ministry of Agriculture & Farmers Welfare** highlighted **India's journey from food deficiency to self-sufficiency** over eight decades of **India-FAO partnership**.

World Food Day

- World Food Day, marks the founding of the **UN's FAO on 16th October 1945**. It was first observed in 1981 with the theme **"Food Comes First"** and officially endorsed by the **UN in 1984**.
 - World Food Day is celebrated in over 150 countries, it highlights hunger issues and promotes action for the future of food and the planet.
- **Theme for 2025 World Food Day: "Hand in Hand for Better Foods and a Better Future"**, emphasizes global cooperation to transform agrifood systems.

Food and Agriculture Organization

- Headquartered in Rome, **FAO has 194 countries and the EU** as members and aims to achieve **food security for all**.
- It supports governments in **agriculture, forestry, fisheries, and land & water management** through **research, technical assistance, training, and data collection**.
- FAO's flagship publications include **The State of Food and Agriculture, and The State of Food Security and Nutrition in the World**.
- **India and FAO:** India has been a **FAO member since 1945**, demonstrating successful international collaboration to reduce hunger.
 - **FAO** has played a key role in India's transformation from a **food-deficient** nation to a **food-surplus country feeding 1.4 billion**, recognizing India as a **global agricultural leader** and supporting the **Viksit Bharat 2047** vision.
 - FAO's **Country Programming Framework (CPF) 2023–2027** aligns with **India's UN Sustainable Development Cooperation Framework (2023–2027)**.

- ❖ It identifies **four priority areas** to support India in **transforming agrifood systems** through **global best practices, national expertise, and technical assistance**.

DEFENCE & SECURITY

India's First Overseas Defence Facility in Morocco

India's Defence Minister inaugurated Tata Advanced Systems Limited's defence manufacturing facility in Morocco and signed a defence cooperation MoU.

- **First overseas defence facility by an Indian private company** and the **largest defence plant in Morocco**.
- Supports India's Aatmanirbhar Bharat, Make in India, and Make for the World strategies.
- Production of the **Wheeled Armoured Platform (WhAP) 8x8**, a joint project by TASL and DRDO.
 - WhAP is a versatile, modular combat vehicle offering advanced protection and mobility, adaptable for multiple roles like infantry fighting, reconnaissance, and more.

Morocco

- Located in **North Africa**, with coasts on the **Atlantic Ocean and Mediterranean Sea**.
- Bordered by **Western Sahara, Algeria, and Spain** (via the **Strait of Gibraltar**).
- Features the **High Atlas Mountains** and **Mount Toubkal**, the highest peak. The **Draa River** is the longest in the country.



INS Androth

The **Indian Navy** has received **'Androth,'** the second of eight indigenously built Anti-Submarine Warfare Shallow Water Crafts (ASW-SWC).

- It features **over 80% indigenous components**. It is named after Androth Island in Lakshadweep.
- **ASW-SWC:** These vessels are **designed for anti-submarine operations** in coastal waters, low-intensity maritime operations (LIMO), and mine-laying missions.

Farewell to the MiG-21

IAF bid farewell to **Mikoyan-Gurevich MiG-21**, ending over six decades of service.

- Single-engine, single-seater, multi-role supersonic fighter jet by **Soviet Mikoyan-Gurevich Design Bureau**.
- Joined **IAF in 1963** as an interceptor; later upgraded for **ground attack** and other roles; known as **“bird of all seasons”**.
- Variants included **Trishul, Vikram, Badal, Bison** with modern **radars, avionics, weapons**.
- Played key roles in **1971 War, Kargil conflict, Balakot airstrike & Operation Sindoor**.
- Nicknamed **“flying coffin”** due to high crash rates.

Exercise KONKAN 2025

Exercise KONKAN-25 (annual bilateral maritime exercise; first held in 2004), held off India's western coast, marks two decades of India-UK naval cooperation.

- 2025 edition is the first to feature both nations' **Carrier Strike Groups**—UK's **HMS Prince of Wales** and India's **INS Vikrant**.
- Reinforces **Comprehensive Strategic Partnership** under **India-UK Vision 2035**, and commitment to **free, open, and secure Indo-Pacific**.
- **Exercises b/w India & UK**—Exercise Cobra Warrior, Exercise Indradhanush (Air Force), AJEYA WARRIOR (Indian Army).



INS Sutlej

INS Sutlej arrived at **Port Louis** to conduct **18th Joint Hydrographic Survey** in Mauritius.

- Specialised hydrographic survey vessel of the Indian Navy, **commissioned in 1993, currently based in Kochi**.
- **Carries one Chetak helicopter**, four survey motorboats.
- Conforms to **ISO 9002** digital survey accuracy standards, enabling production of **electronic navigational charts (ENCs)**.

IAF to Receive First Tejas Mk1A Fighter Jet

IAF will receive its first **LCA Tejas Mk1A** (upgraded variant of LCA Tejas, developed by HAL), marking a milestone in India's indigenous fighter jet program.

- **Capabilities**— AESA radar integration, Electronic Warfare Suite (EWS), **Upgraded Flight Control Computer (DFCC Mk1A)**, Missile compatibility— **Beyond Visual Range (BVR)**, **Air-to-Air, Air-to-Ground, ASRAAM**; planned integration of Combined Interrogator and Transponder (CIT), Software Defined Radio (SDR) & Operating Data Link (ODL).

LCA Tejas

- Initiated in **1984**, aimed to replace MiG-21 fighter jets; managed by **Aeronautical Development Agency (ADA)**.
- **Features**: Lightest, smallest, and tailless multi-role supersonic fighter in its class. Capable of carrying a variety of air-to-air, air-to-surface, and precision-guided weapons.
 - **Maximum payload capacity**: 4000 kg; **Maximum speed**: Mach 1.8; **Range**: 3,000 km.
- **Variants**: Tejas Trainer, LCA Navy, LCA Tejas Navy Mk2, LCA Tejas Mk-1A

Samudra Shakti-2025

The 5th edition of the Indo-Indonesian bilateral maritime exercise, hosted by the Indian Navy in Visakhapatnam.

- **Foundation**: Initiated in 2018 **under India's Act East Policy**, Samudra Shakti focuses on complex maritime operations.
- **Key Activities**: Military Interdiction Operations (MIO), Cross Deck Landings, Air Defence drills, Practice Weapon Firings, Replenishment Approaches, and Tactical Manoeuvres.
- **Objective**: To enhance coordination, strengthen defence cooperation, and promote peace and stability in the Indo-Pacific region.
- **Other Exercises**: Garuda Shakti & IND-INDO CORPAT



Indigenous Military Combat Parachute System

DRDO successfully tested **MCPS from 32,000 feet**, the **only parachute system in operational use by Indian Armed Forces capable of functioning above 25,000 feet**, marking a key milestone in indigenous defence innovation & self-reliance.

- **Developed by:** DRDO's Aerial Delivery Research & Development Establishment (**Agra**) & **Defence Bioengineering & Electromedical Laboratory** (Bengaluru).
- **Navigation:** Integrated with **NavIC**; secure, interference-free operations & resilience against external jamming or denial-of-service threats.
- **Features:** Lower descent rate, better steering control, accurate navigation, pre-determined landing zone, etc.

Tomahawk Missiles

US may supply **long-range Tomahawk cruise missiles** to **Ukraine** if **Russia** fails to take credible steps to de-escalate the ongoing conflict.

Parameter	Cruise Missile	Ballistic Missile
Trajectory	Follows a comparatively straight & controlled trajectory	Travels in projectile path; trajectory depends on gravity, air resistance, & Coriolis Force
Flight Path	Remains within Earth's atmosphere throughout its flight	Leaves Earth's atmosphere & re-enters it
Range	Short-range missile	Long-range missile
Indian Examples	BrahMos, Nirbhay, LRLACM	Prithvi I & II, Agni series , Dhanush, Shourya, K-15 (Sagarika), K-4 (Submarine-launched)
Global Examples	Tomahawk (US), Kalibr (Russia), CJ-10 (China), Babur (Pakistan)	Minuteman III (US), DF-41 (China), RS-24 Yars (Russia), Shaheen-II (Pakistan)

SUMMITS & CONFERENCES

International Seabed Authority's 8th Annual Contractors Meeting 2025

India hosted **8th Annual Contractors' Meeting of ISA** at **CSIR-National Institute of Oceanography, Goa**.

- **Sustainable Resource Management:** In line with India's Deep Ocean Mission and "common heritage of mankind" vision.
- **India's Role:** Pioneering in international seabed exploration, first to receive a **polymetallic nodule (PMN)** exploration area and designated as a "**Pioneer Investor**." Two contracts with ISA in **Central Indian Ridge, Southwest Indian Ridge & Carlsberg Ridge**; India holds the largest exploration area for PMS in international seabed.

- ISA is headquartered in **Kingston, Jamaica**; an autonomous organization established under **1982 UNCLOS & 1994 Implementation Agreement**.
- Regulates all mineral-resource activities in international seabed with **170 member states, including India**.

India Mobile Congress

PM inaugurated **9th edition of IMC 2025**, Asia's largest telecom, media, and technology event, in New Delhi.

- **Organised by:** DoT and Cellular Operators Association of India (COAI)

- **About:** Long-range, all-weather, **subsonic cruise missile** for precision strikes; **Launch Platforms**—Ships & submarines.
- **Flight Features:**
 - **Low-altitude flight path & advanced guidance systems** (**GPS**, **Inertial Navigation System (INS)**, **TERCOM** (terrain mapping), and **DSMAC** (digital scene matching), radar-evading & navigates complex terrain; **Mid-flight reprogramming**, real-time target adjustment or mission abort.
- **Propulsion:**
 - Fires a **solid propellant at launch**; runs on a turbofan that emits minimal heat.

- **Theme:** "*Innovate to Transform*"
- **Focus:** Innovation for digital transformation; annual event
- **Related Developments:**
 - **Bharat 6G Alliance MoUs** with **NASSCOM** and **European Space Agency**
 - Released **4 whitepapers** on spectrum, telecom power, AI-driven networks, 6G architecture & security
 - **6G Goals**— **\$1.2 trillion GDP boost by 2035**; targeting **10% of global 6G patents**
 - **Satellite communications market**— expected to **triple by 2033**

PLACES IN NEWS

India's First Cross-Border Rail Links with Bhutan

India has **launched its first railway links with Bhutan**: **Kokrajhar–Gelephu (Assam)** & **Banarhat–Samtse (WB)**, totaling 89 km.

- Gelephu (being developed as "**Mindfulness City**") & Samtse (an industrial town by Govt. by Bhutan) are key **export-import hubs on the 700-km India-Bhutan border**.
- Railway links reinforce **India's Neighbourhood First Policy**, counter China's influence, and deepen ties. For Bhutan, it offers access to **India's 1.5 lakh km rail network**, boosting trade, tourism, industrial growth & people-to-people connections.

- India pledged Rs 10,000 cr for Bhutan's 13th FYP (2024–29); **Integrated check post** at Darranga, Assam.
 - Bhutan will benefit from **Jogighopha Inland Waterways Terminal**.
 - **5 joint hydropower projects**– Chukha, Tala, Mangdechhu, Kurichhu & Punatsangchhu II.



Amazon Rainforest

A Nature study shows **Amazon Rainforest** trees are growing larger as rising atmospheric **CO₂** levels triggers the **carbon fertilisation effect**, enhancing **photosynthesis** and **plant growth**, which increases carbon storage and may help offset climate change.

Carbon Fertilisation Effect

- **Higher CO₂ → More Photosynthesis** → Faster plant growth, increased biomass.
- **Improves water efficiency** in plants.
- **Limitations:** Effect depends on **water**, **nutrients** (esp. nitrogen), and **temperature**.

Amazon Rainforest (Largest Tropical Rainforest)

Feature	Details
Location	South America; spans ~6 million sq. km; 60% in Brazil. Spread across Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname, and French Guiana.
Boundaries	Guiana Highlands (N), Andes (W), Brazilian Plateau (S), Atlantic (E)
Biodiversity	Hosts 10% of world species; rich flora & fauna
Flora & Fauna	Rubber tree, Brazil nut, mahogany, cedar, rosewood, palm and Jaguar, manatee, capybara, anaconda, sloth, macaw
Protected Areas	Yasuni (Ecuador), Manu (Peru), Jau & Tumucumaque (Brazil), etc.
Global Role	"Lungs of Earth" – 20% of global oxygen, major carbon sink

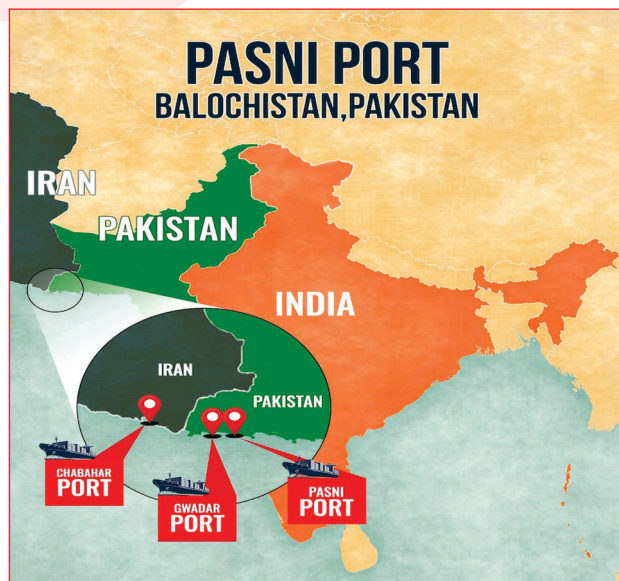
Amazon River

- **Largest by discharge**, 2nd longest globally.
- **Source:** Peruvian Andes → Flows to **Atlantic Ocean**
- **Tributaries:** Rio Negro, Madeira, Xingu
- **Watershed:** Brazil, Peru, Ecuador, Colombia, Venezuela, Bolivia



Port of Pasni

Pakistan has reportedly offered US to build a port at **Pasni**, near Gwadar (Balochistan), providing maritime access near Iran's border.



- **Aims to reduce reliance on China's BRI**, attract US investment, and export critical minerals.
- **Located in the Arabian Sea** is a small deep-water harbour featuring a fish harbour and **Pakistan Maritime Security Agency (PMSA) base**.
 - Lies near Iran-Pakistan border, east of China-backed Gwadar, close to India's Chabahar Port, **forming a strategic triangle with Chabahar– Gwadar– Pasni**.

Paataalkot Valley

First Health Centre opened in remote tribal valley of Paataalkot, MP.

- **Horseshoe-shaped valley** surrounded by hills, with **Doodhi river** (tributary of Narmada) and inhabited by **Gond & Bharia** PVTGs.
- **Features** Archaean (~2500 Mn years) era rocks– granite gneiss, green schists, quartz, Gondwana sediments (**conglomerate sandstone, shales & carbonaceous shales**), and **Shilajit (composite carbon substance)** in upper zones.
- Hosts **Satpuda Adventure Sports Festival** in Oct.

Finger Lakes

Scientists are investigating newly discovered **craters** at the bottom of **Seneca Lake** (one of the Finger Lakes) to determine if they release **methane or other gases** responsible for the mysterious "**Seneca Guns**" sounds.

- Seneca Lake, one of **New York's Finger Lakes**, is famous for its **mysterious booming sounds**, popularly called the **Seneca Guns** or **Seneca Drums**.

Finger Lakes

- **About:** The **Finger Lakes** comprise 11 **long, narrow, parallel lakes** in **north-south** orientation, named for their **finger-like shape** on the map.
 - The two largest finger lakes, **Seneca** and **Cayuga**, are among the **deepest** in **North America**.
- **Geological Formation:** They were created when advancing **glaciers** during the **Pleistocene ice age** deepened and widened narrow, **V-shaped river valleys** into **U-shaped troughs** through a process called **glacial scouring**.
 - **Moraines** (rock and debris piles) mark the **glacier's limits** at the **southern ends** of the lakes, while **drumlins** (teardrop-shaped hills) formed under the **moving ice** and appear in **bands north** of the lakes.
- **Role of Milankovitch Cycles:** These **glacial advances** and **retreats** were driven by long-term **orbital variations** in **global climate**, known as **Milankovitch cycles**.
- **Formation of Lake Basins:** The eventual **retreat of the glaciers** left behind **debris piles** called **recessional moraines**, which acted as **dams**, causing the **deepened valleys** to fill with **water** and form the **modern lakes**.



AUSTRAHIND 2025

Indian Army contingent departed for Australia for the 4th annual joint military exercise 'AUSTRAHIND 2025'.



- **Started**– 2022; 1st edition in Mahajan, Rajasthan
- Focus on **interoperability** in urban/semi-urban operations under UN Chapter VII (peacekeeping)

India-Australia Defence Relations

- **Comprehensive Strategic Partners** since 2020; **Mutual Logistics Support Agreement** signed in 2021
- Joint participation in multilateral exercises- **Malabar**, **Talisman Sabre** & **Cope India**

Sharm el-Sheikh

World leaders convened at Sharm el-Sheikh, Egypt, for 'Summit for Peace', led by US President Donald Trump, to end the Gaza conflict and restore Middle East stability.

Location: Southern tip of Sinai Peninsula, overlooking the **Strait of Tiran**, connecting **Red Sea** to **Gulf of Aqaba**, and Israel's only access to the Indian Ocean.



- **Historical Background:** Occupied by Israel during the **1967 Six-Day War**, returned to Egypt in 1982 after the Camp David Accords; Egypt's President Hosni Mubarak named it the "**City of Peace**" in 1982.
- **Diplomatic Hub:** Key venue for international diplomacy, hosting major events like the **Israel–Palestine Peace Talks (1999)**, **first EU–Arab League Summit (2019)**, **COP27 (2022)**.

Madagascar

Madagascar's armed forces have **ousted the incumbent President** after **Gen Z-led rebellion** over **economic crises & governance failures**. The country has faced frequent military takeovers since 1960, last seen in 2009.

- **Location:** Island nation in the **Indian Ocean**, bordered by **Mozambique Channel (west)**, near **Comoros, Réunion & Mauritius**.



- **Geography:** 4th-largest island globally; includes **rainforests**, **deserts**, **plains**, **coral reefs** & **mangrove forests**.
- **Biodiversity:** ~90% endemic species.
 - **Notable Fauna:** **Lemurs** (e.g., silky sifakas, aye-ayes), **giant leaf-tailed geckos**, **Madagascan plovers**, etc;
 - **Marine Life:** Humpback whales, pygmy blue whales;
 - **National Tree:** **Baobab** (water-storing trunk).
- **Colonial History:** **France** colonized in **1896** after 1883 invasion; **independence** in **1960** post **1947 Malagasy Uprising**.
- **Culture & Economy:** ~80% rely on **agriculture** (coffee, vanilla, sugarcane; rice staple food); **Music**– **Valiha** (bamboo tube zither) is the **national instrument**.

PORTAL & APPS

PRAGATI

PM chaired the 49th meeting of **PRAGATI (Pro-Active Governance and Timely Implementation)**, focusing on expediting key infrastructure projects.

- **PRAGATI:** It is an innovative, **Information and Communication Technologies (ICT)**-enabled platform initiated in 2015 to ensure **timely implementation of government projects**, and redress public grievances.

- It facilitates Centre-State coordination, fostering the **“Team India” approach** and resolves inter-state disputes efficiently, bypassing **red tapeism**.
- **Key Features:** PRAGATI has a three-tier system (**Prime Minister’s Office (PMO), Union Government Secretaries, and Chief Secretaries of the States**) for direct communication. Prime Minister-led oversight ensures timely decisions and swift resolution of bottlenecks.
 - It combines video conferencing, geo-spatial mapping, drone feeds, and centralized data systems.
 - It is integrated with the **Centralised Public Grievance Redressal and Monitoring System, PM Gati Shakti, PARIVESH, and Project Monitoring Group portal**, enabling real-time monitoring and predictive tracking.
- **Impact:** As of 2024, the PRAGATI platform has helped accelerate over 340 critical projects worth **USD 205 billion**.
 - Improved implementation of **Jal Jeevan Mission, Swachh Bharat Abhiyan, and Saubhagya Scheme**, directly benefiting millions of citizens.
 - Resolved citizen issues such as **Employees’ Provident Fund (EPF) payments, income tax refunds, and other public complaints**, while improving systemic mechanisms to prevent recurrence.

Expansion of National Agriculture Market (e-NAM)

The **Ministry of Agriculture and Farmers’ Welfare** has expanded the **e-NAM** by including **9 additional commodities**, increasing the total tradable agricultural products on the platform to **247** from **238**.

- **About:** e-NAM is a **pan-India electronic trading portal** launched in **April 2016**, fully funded by the **Central Government** and implemented by **Small Farmers Agribusiness Consortium (SFAC)**.
 - Its **beneficiaries** are farmers, mandis, traders, buyers, processors and exporters
- **Key Objectives:**
 - **Create a Unified Market:** Integrate state-level markets for pan-India agricultural trade.
 - **Ensure Transparency:** Enable better price discovery via transparent auctions and wider buyer access.
 - **Improve Efficiency:** Streamline and standardize marketing procedures across markets.
 - **Assure Quality:** Implement quality assaying so prices reflect produce quality.
 - **Benefit Consumers:** Support stable prices and availability of quality produce.
- **Features:** **Pan-India Network**, Quality assurance & assaying, **Streamlined licensing & market fees**, **Direct**

online payments, improved market access & information, and Logistics & Integration.

- **Monitoring:** It follows a **coordinated approach** with **SFAC** at the **national level** and **respective state departments** with supporting **agencies** at the **state level**.
- **Pre-requisites for e-NAM:** States must implement **three reforms** in their **APMC Act** to integrate mandis with **e-NAM**:
 - Permit **e-auction/electronic trading**.
 - Issue a **single trading license** valid across the **State/UT**.
 - Apply a **single-point levy of market fee**.
- **Tradable Parameters for Goods:** The **Directorate of Marketing and Inspection (DMI)** is tasked with setting **tradable parameters** for commodities on **e-NAM**, which establish **standardized grades or ranges**, link **prices to quality**, and help farmers secure better **value** for their produce.
- **eNAM Achievements:** A total of **1,389 Mandis** from **23 States** and **4 UTs** have been integrated into the **e-NAM platform**, with over **1.77 crore farmers** and **2.53 lakh traders** registered as of **February 2024**.
- **Significance:** Enhanced **price realization** for farmers, Reduction in post-harvest losses, **Formalization of agricultural trade**, **Stable prices** and supply for consumers.

Other Digital Marketing Initiatives in Agriculture
■ Krishi UDAN 2.0
■ Digital Agriculture Mission (DAM)
■ India Digital Ecosystem of Agriculture (IDEA)
■ ITC’s e-Choupal
■ Agri Market Infrastructure Fund (AMIF)
■ Agri-Stack
■ National e-Governance Plan in Agriculture (NeGP-A)
■ AGMARKNET

DRAVYA Portal

Ministry of Ayush launched **DRAVYA (Digitised Retrieval Application for Versatile Yardstick of Ayush)** portal as a comprehensive digital repository of Ayurvedic ingredients & formulations.

- **Developed by:** **Central Council for Research in Ayurvedic Sciences (CCRAS); AI-ready platform**, linked with **Ayush Grid**
- **Phase 1:** Aims to catalogue 100 key medicinal substances
- **Features:**
 - Detailed profiles– **pharmacotherapeutics, botany, chemistry, pharmacology, safety**
 - Enables **intelligent data analysis** and links with health databases

- Supports **researchers, practitioners, students, policymakers** in drug validation & pharmacopoeial harmonisation.

Zoho Platform

Over 12 lakh govt email accounts, including PMO, migrated from NIC to Zoho-developed platform to boost data sovereignty and Swadeshi tech adoption.

- **Founded:** Global **Software-as-a-Service (SaaS)** leader founded in 1996, India; **HQ:** Chennai
- **Reach:** 100+ Mn users in **150+ countries**
- **Security:** Audited by **Software Quality Systems (SQS)**; security clearance & inputs were obtained from NIC, CERT-In, and other govt bodies
- **Key Differentiators:** **Privacy-first** (no ad revenue model, prioritising user data privacy); **cost-effective** for SMEs
- **Self-Reliant India Vision:** Despite being incorporated in US it operates from **rural TN**, aligned with **Atmanirbhar Bharat**

Compensation Portal for FASTag Annual Pass Scheme

The **Ministry of Road Transport and Highways** has introduced a **compensation portal** designed to enhance toll operations.

- This platform will empower dedicated officials to oversee revenue sharing for the **FASTag Annual Pass scheme**, significantly reducing conflicts over revenue losses faced by toll operators (concessionaires).
- **FASTag Annual Pass Scheme:** It was launched by **National Highways Authority of India (NHAI)** and **National Payments Corporation of India (NPCI)** in August 2025, allows private vehicles to travel seamlessly on **National Highways and Expressways** through a **one-time payment of Rs 3,000** for one year or 200 crossings whichever comes first.
 - It reduces frequent recharges, ensures **transparent NPCI-backed transactions**, and eases toll payments, promoting **smooth digital commuting**.
 - The pass is **non-transferable** and valid only for **non-commercial cars, jeeps, and vans** after checking through the **VAHAN database**.
 - The Annual Pass currently excludes State Highways, but **regular FASTag** is applicable, and **technical support** will be provided if states implement the pass system.

■ **FASTag:** It is an electronic toll collection system that uses Radio Frequency Identification (RFID) technology and integrated with the NPCI for automatic, cashless payments via linked bank accounts or prepaid wallets.

- NHAI has launched the 'One Vehicle, One FASTag' initiative that aims to discourage user behavior of using single FASTag for multiple vehicles.

SPECIES IN NEWS

Kurinji Bloom

The mass flowering of **Kurinji** after eight years in **Tamil Nadu's newly notified Gudalur Reserve Forest in the Nilgiris** signals **biodiversity recovery** and serves as an **indicator of healthy grasslands and changing climate conditions**.

- Over **60 species of Kurinji**, including ***Neelakurinji* (*Strobilanthes kunthiana*)**, are **endemic to the Western Ghats**, with **33 varieties in the Nilgiris**.
 - In **Gudalur**, the recent mass bloom is of ***Strobilanthes sessilis*** a variety of **Kurinji**, which **flowers once every eight years**.
 - Kurinji flowers **once in a lifetime**, like bamboo, and dies after flowering, relying on seed germination for the next generation.
 - Color variations include **purple, blue, white, and pink**, with multiple shades for each.
- **Neelakurinji:** It is a shrub native to the **shola forests of the Western Ghats**. It is found in abundance in the **Kodaikanal region** of Tamil Nadu.
 - The plant blooms once every **12 years** and is classified as **Vulnerable** on the **IUCN Red List**. The Nilgiris ("**Blue Mountains**") get their name from its **blue flowers**.
- **Cultural Significance:** In local mythology, the **Kurinji flower** is associated with **Lord Muruga**. Among the **Muthuvas and Todas tribes**, Kurinji symbolizes **love and passion**.
- **Ecological Importance:** Mass flowering of Kurinji attracts **butterflies, honeybees, and other insects**, supporting pollination.
 - It is an indicator of **healthy grasslands and thriving wildlife**, including **elephants, tigers, and hornbills**.

Indian Wolf

The **Indian wolf (*Canis lupus pallipes*)**, currently found across India and Pakistan, is set to be recognised as a **new and distinct species** by the **International Union for Conservation of Nature (IUCN)**.

- **Oldest Lineage:** The Indian wolf was earlier grouped under the **umbrella genus of the grey wolf (*Canis lupus*)**, but genetic studies reveal that the Indian wolf's lineage diverged, making it the most ancient extant lineage among wolves globally.
- **Ecological Niche:** Unlike forest-dwelling species, Indian wolves are adapted to **arid and semi-arid open habitats** such as grasslands and scrublands, often misclassified as "wastelands" in land use policy.
- **Conservation Status of Indian Wolf:**
 - **IUCN Red List:** **Vulnerable (likely to be)**
 - **Schedule I of the Wildlife (Protection) Act, 1972**

- **Ecological Significance:** The Indian wolf inhabits scrublands and grasslands, which also support species like the Great Indian Bustard and Blackbuck. Recognizing it as a distinct species may enhance grassland conservation.
- **Major threats include:** Habitat destruction from highways and industrial projects, declining prey base and Habitat fragmentation reducing genetic diversity.

Blackbuck Revival in Chhattisgarh

After being declared locally extinct in 2017, the blackbuck has made a remarkable comeback in **Barnawapara Wildlife Sanctuary**, Chhattisgarh. Through a five-year revival plan (2021–2026), the state forest department has successfully reintroduced and bred over 190 blackbucks.

Blackbuck Revival Program

- **About Programme:** The Chhattisgarh State Wildlife Board approved a **five-year plan (2021–2026)** aimed at re-establishing a **self-sustaining blackbuck population** in the region.
 - A total of **77 blackbucks** have been translocated under the project. Fifty were brought from the **National Zoological Park in New Delhi**, and twenty-seven were sourced from the **Kanan Pendari Zoological Garden in Bilaspur**.
 - The **blackbuck (Antelope cervicapra)**, once native to several regions of Chhattisgarh, disappeared due to extensive **habitat degradation, poaching, and land-use changes**.
- **Objective:** The primary objective is to **rebuild a stable and breeding blackbuck population** and strengthen **grassland management practices** within the sanctuary.
- **Habitat and Veterinary Management:** Sand-layering, improved drainage, and medical surveillance reduced mortality (e.g., post-2018 pneumonia outbreak).
 - **Dedicated team** established for habitat improvement, including **weed removal and native grass cultivation**.

Key Facts Related to Blackbuck

- **About:** The **blackbuck (Antelope cervicapra)**, also known as the **Indian Antelope**, is a graceful and diurnal species native to **India and Nepal**.
- **Habitat:** It primarily inhabits **open grasslands and scrublands** across states such as **Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, and Odisha**.
 - The species is a **flagship indicator of grassland ecosystem health** and symbolizes the importance of conserving these often-overlooked habitats.
 - Major blackbuck habitats in India include the **Velavadar Blackbuck Sanctuary (Gujarat)**, **Point Calimere Wildlife Sanctuary (Tamil Nadu)**, and **Tal Chhapar Sanctuary (Rajasthan)**.

Protection and Conservation Status:

- The **IUCN Red List : Least Concern**.
- Under the **Wildlife (Protection) Act, 1972: Schedule I**, providing the highest level of legal protection in India.
- The species is also included in **Appendix III of CITES**, which regulates international trade.

Symbolic Significance:

- The blackbuck has been declared the **State Animal** of Punjab, Haryana, and Andhra Pradesh, reflecting its ecological and cultural importance.

Barnawapara Wildlife Sanctuary

- The sanctuary is located in the northeastern part of Raipur district, Chhattisgarh, and is named after the Bar and Nawapara forest villages at its centre.
- It features undulating terrain with numerous low and high hillocks, forming an ideal natural landscape for diverse wildlife.
- Several tributaries of the Mahanadi River flow through the sanctuary. The Balamdehi River forms its western boundary, while the Jonk River marks its northeastern edge.
- The sanctuary has well-stocked teak, sal, and mixed forests, providing a rich habitat for various species.
- Commonly sighted animals include Indian bison (Gaur), Cheetal, Sambhar, Neelgai, and Wild boar.

MISCELLANEOUS

Mohenjodaro Dancing Girl

A replica of the Mohenjodaro 'Dancing Girl' was stolen from the National Museum in Delhi but later recovered.

- The **bronze figurine dates back to the Indus Valley Civilization** (c. 2500 BCE), discovered in 1926 by Ernest Mackay at Mohenjodaro.
- **Created using the Lost-Wax Casting Technique**, where a wax model is covered with a mold, melted out, and replaced with molten metal.

Qatar Becomes 8th Country to Adopt UPI

NPCI has partnered with **Qatar National Bank (QNB)** to implement **UPI in Qatar**, following **Bhutan, France, Mauritius, Nepal, Singapore, Sri Lanka & UAE**.

- Indians are the **2nd largest group of visitors to Qatar**; UPI adoption reduces cash use and currency exchange hassles.

Developed by NPCI, UPI is a leading digital payment system enabling real-time, secure, low-cost transactions. Built on IMPS and integrates Aadhaar Enabled Payment System (AePS).

Super Typhoon Ragasa

Super Typhoon Ragasa struck Taiwan, leaving dozens missing across East Asia (Philippines, Taiwan, China, Hong Kong).

- **Super Typhoon (Cyclone):** A **Category 5 storm**, with winds around 253 km/h, typically forming in the West Pacific near China, Japan, and the Philippines.

Indian Meteorological Department (IMD) classifies low-pressure systems based on their damage potential, a system adopted by the WMO.

Type of Disturbances	Wind Speed in Km/h
Low Pressure	Less than 31
Depression	31-49
Deep Depression	49-61
Cyclonic Storm	61-88
Severe Cyclonic Storm	88-117
Super Cyclone	More than 221

Oju Hydel Project

Govt. has approved environmental clearance for **Oju Hydroelectric Project in Arunachal Pradesh**, paving the way for **one of India's largest hydroelectric project near China border**.

- A 2,220 MW **run-of-river hydro project**.
- Aims to tap into **Subansiri basin's** hydropower potential, boosting India's renewable energy; the **largest in the basin**, crucial for basin-wide energy planning.

- **Subansiri River (Gold River)** is a Trans-Himalayan river



- **Origin**– Western part of Mount Porom in Tibetan Himalayas.
- **Enters India** through Miri Hills, Arunachal Pradesh.
- **Merges with Brahmaputra** (longest tributary on the right northern bank) at **Majuli Island**, Assam, largest river island in Asia.

Goods and Services Tax Appellate Tribunal (GSTAT)

The Union Finance Minister formally launched the **GSTAT**, marking a significant milestone in India's **GST** journey. The tribunal is set to streamline dispute resolution and reinforce trust in **India's indirect tax system**.

- **About:** A statutory body established under the **Central Goods and Services Tax Act, 2017** to hear appeals against

orders passed by the Appellate or Revisional Authorities. It provides taxpayers a **specialized and independent forum for justice**, enhancing the **orderliness, predictability, and credibility** of the GST regime.

- **Objectives:** GSTAT aims to create a **single, unified appellate forum** for GST disputes across India ("**One Nation, One Forum**"). It minimizes **legal friction and ambiguity** in GST laws.
 - It aims to ensure **timely resolution** of disputes to improve cash flow and business certainty.
 - GSTAT focuses on **plain language decisions, simplified formats, checklists, and virtual hearings**. It promotes **citizen-centric governance** aligned with principles of 'Nagarik Devo Bhava' and Next-Gen GST reforms.
- **Functions:** GSTAT functions via a **Principal Bench in New Delhi** and 31 State Benches across 45 locations, ensuring nationwide reach.
 - Each bench has **2 Judicial Members, 1 Central Technical Member, and 1 State Technical Member**, blending judicial and technical expertise for impartial and consistent decisions.
 - Designed around the **three S's: Structure** (judicial + technical expertise), **Scale** (state benches and single-member benches for simple cases), and **Synergy** (technology, process, and human expertise).
 - **GSTAT e-Courts Portal** enables **online filing, case tracking, and virtual hearings** for taxpayers and practitioners.
- **Benefits:** Protects the **rights of both large and small taxpayers** with no undue delay in justice. Reduces ambiguity and ensures **consistency in interpretation** across India.
 - Encourages **investment confidence** and simplifies tax compliance for MSMEs, exporters, startups, and citizens.

- **Digital portal** enables taxpayers to file appeals online, track cases, and participate in virtual hearings.

Nuclear Liability Fund

India **plans to create a nuclear liability fund under upcoming Atomic Energy Bill**, amending the Atomic Energy Act, 1962, and Civil Liability for Nuclear Damage Act, 2010.

- Nuclear power **accounts for <3% of electricity**, but India aims to expand capacity **12-fold by 2047**.
- Previous laws deterred investment due to unlimited supplier liability & **lack of legal certainty** in the 2015 insurance pool.
- Fund **covers accident compensation over Rs 1,500 cr**, supplementing operator liability; offers a structured framework, **reducing risk for private and foreign investors** in nuclear energy & uranium mining.

CLNDA, 2010

- Ensures compensation for nuclear accident victims & defines operator responsibility; aligns with **Convention on Supplementary Compensation (CSC, 1997)**, ratified by India in 2016.
- Operators face **strict no-fault liability**, capped at Rs 1,500 cr. Claims above this will be covered by govt., with its liability capped at rupee equivalent to **300 Mn Special Drawing Rights (SDRs)**. Under the act, **Nuclear Damage Claims Commission** ensures fair compensation.

Capacity Building and Human Resource Development Scheme

Union Cabinet has approved **CBHRD Scheme (2021-26)** under **15th Finance Commission** Cycle.

- Aims to enhance India's **human resource capacity** in **STEMM** sciences and strengthen country's **R&D ecosystem**.
- **Implementation body**– CSIR
- **Target Institutions**– all R&D institutions, national labs, Institutes of National Importance, Institutes of Eminence, and universities.
- **Sub-Schemes**:
 - Doctoral & Postdoctoral Fellowships
 - Extramural Research, Emeritus Scientist, Bhatnagar Fellowship Programs
 - Promotion & Recognition of Excellence through awards
 - Travel & Symposia Grant Scheme for knowledge sharing
- In 2025, **India ranks 38th in the Global Innovation Index (GII)** and is among the top 3 countries in scientific paper publications.

National Initiative on Water Security

Govt. has launched **National Initiative on Water Security** under **MGNREGA, 2005**, prioritizing water conservation across rural India.

- **Aim**: Address depleting groundwater levels and ensure long-term rural water security.
- **Implementation**: MGNREGA Act amended to mandate water conservation works & allocate funds for water-related projects.

Block Category	Minimum % of MGNREGA Funds for Water Works
Over-exploited	65%
Semi-critical	40%
Blocks without water scarcity	At least 30%

Achievements of MGNREGA in Water Conservation

- Become the **world's largest social welfare program** by creating 1.25 cr+ water conservation assets (e.g., farm ponds, check dams).
- Under **Mission Amrit Sarovar (Phase I)**, 68,000+ reservoirs were constructed/rejuvenated.

China to Retain 'Developing Status' but Forgo WTO Benefits

China will **voluntarily forgo Special and Differential Treatment (SDT)** in future WTO agreements, while **retaining developing country status and past rights**, to show readiness for **stricter trade obligations**.

Note: China's economy (world's ^{2nd} largest) has grown at USD 19 trillion from USD 1.3 trillion since joining the WTO in 2001.

- WTO has **no official definition of developing or developed nations**; members **self-designate**; others can **challenge misuse**.
- Self-declared status doesn't ensure benefits under schemes like **Generalized System of Preferences (GSP)**.
- **SDT** offers **flexibility, preferential treatment, technical assistance & exemptions** to developing and LDCs; promotes trade equity by recognizing members' varying capacities.
 - Eases **developed vs. developing** debate; may **unlock trade negotiations**.
 - ❖ Enables India to seek WTO reforms **distinguishing large middle-income from low-income nations** & push for clear SDT criteria.

Indian Ports Act, 2025

Replaces the **Indian Ports Act, 1908** and aims at **modern legal framework, cooperative federalism, and global competitiveness** in port management.

Key Provisions

- **State Maritime Boards (SMBs)**: Statutory recognition to manage **non-major ports** (planning, licensing, tariffs, compliance).

- **Maritime State Development Council:** Given statutory status for policy advice, data transparency, and Centre–State coordination.
- **Port Officers: Conservator** (appointed by govt.) designated as **Port Officer** – handles vessel movement, fee recovery, disease control, and penalties.
- **Dispute Resolution: Dispute Resolution Committees (DRCs)** for non-major ports; appeals with High Courts, arbitration permitted.
- **Tariff Regulation:**
 - **Major Ports:** Tariffs by **Major Port Authority Board / Company Board**
 - **Non-Major Ports:** By **SMBs or concessionaire**, with mandatory online publication
- **Safety & Sustainability:** Aligns with **MARPOL, Ballast Water Management**, central audits, disaster readiness, penalties for safety breaches
- **Digitalisation & EoDB:** Maritime Single Window and Advanced Vessel Traffic Systems

Ports handle ~95% of EXIM cargo by volume, ~70% by value; India has 12 major ports (13th at Vadhavan upcoming) and 200+ non-major ports.

India's First Integrative Oncology Research and Care Centre

The Ministry of Ayush inaugurated the **first-of-its-kind IORCC** at the All India Institute of Ayurveda (AIIA), Goa, on the **10th National Ayurveda Day**.

- It is the **first multidisciplinary centre in India** integrating **Ayurveda, Yoga, Physiotherapy, Diet Therapy, Panchakarma, and modern oncology** under one roof.
- The initiative aligns with the **National Health Policy's** focus on integrating **traditional and modern medicine systems**.
- **National Ayurveda Day** is celebrated on **23rd Sept**, symbolizing **balance in nature**, reflecting **Ayurveda's** emphasis on **mind, body, and spirit equilibrium**.
- **Theme:** *Ayurveda for People & Planet*.

International Civil Aviation Organization

India has been re-elected to **Part II of ICAO Council for 2025–28 term**, focusing on strengthening aviation safety, enhancing air connectivity, advancing technology & supporting **ICAO's No Country Left Behind initiative**.

- A specialised UN agency; **Est. in 1944** through **Convention on International Civil Aviation in Chicago**; sets global air navigation standards.
- 193 member states, **including India (founding member)**.
- ICAO Assembly (**organization's sovereign body**) is held every 3 years and elects 36 member Council, divided into:

- **Part I:** States of chief importance in air transport (e.g., US, UK, China, Japan).
- **Part II:** States contributing most to international air navigation (e.g., India, Germany, Brazil).
- **Part III:** States ensuring geographic representation (e.g., Bolivia, Malaysia, Ethiopia).

Payments Regulatory Board (PRB)

RBI has set up a **six-member PRB** to improve oversight and governance of payment systems.

- **Composition:** Chaired by RBI Governor, with 2 RBI representatives & 3 Central Government nominees.
 - **RBI members**– Deputy Governor & Executive Director in charge of Payment and Settlement Systems; RBI's principal legal adviser is a permanent invitee.
- **Predecessor Body:** Replaces **Board for Regulation and Supervision of Payment and Settlement Systems (BPSS)**, a committee of RBI's Central Board.
- **Legal Authority:** Derives powers from the **Payment and Settlement Systems Act, 2007**. Department of PSS reports to PRB.
- **Decision-Making:** Majority vote of members present, with chairperson or deputy governor having a second or casting vote in case of a tie.

Mutual Legal Assistance Treaty (MLAT)

- **Definition:** Bilateral/multilateral treaties for cooperation in criminal matters (terrorism, trafficking, cybercrime, fraud).
- **Purpose:** Evidence sharing, investigation, prosecution → prevents criminals escaping via jurisdictional gaps.
- **Significance:** Ensures reciprocity, speed, and stronger international cooperation in transnational crimes.
- **India's Approach:**
 - MLA requests routed through **Ministry of Home Affairs (MHA)**, with **MEA** support.
 - India has signed MLATs with **42 countries (2019)**.
- **International Conventions (India part of):**
 - UN Convention Against Transnational Organized Crime (2000)
 - UN Convention Against Corruption (2003)
 - UN Convention Against Illicit Traffic in Narcotic Drugs (1988 – Vienna Convention)
 - Hague Convention
 - SAARC Convention
 - Commonwealth Harare Scheme

Electronics Component
Manufacturing Scheme (ECMS)

ECMS, launched in April 2025 as a complement to the India Semiconductor Mission, has attracted **USD 13 bn investment proposals** (double target), with **60% MSME participation** and an aim to create **1.41 lakh jobs**.

- **Tenure:** 6 years (FY 2025–26 to 2031–32; includes 1-year gestation).
- **Objective:** Enhance **Domestic Value Addition**, cut imports, integrate with **Global Value Chains**.
- **Linkages:** Electronics + automobile, power, industrial sectors.
- **Incentives:** Turnover-linked, capex-linked, or hybrid; partly tied to **employment generation**; **first-come, first-served**.
- **Significance:**
 - Electronics = India’s **3rd largest export**; **2nd largest mobile manufacturer**.
 - Goal: **USD 500 bn electronics ecosystem by 2030–31**.

India’s First Cooperative Compressed Biogas Plant

India’s first **cooperative multi-feed CBG plant** was inaugurated in **Maharashtra**, which will produce **12 tons of CBG daily & 75 tons of potash from jaggery/molasses**.

- **CBG**– renewable fuel produced from **biomass & organic waste** via **anaerobic decomposition**.
- Similar **calorific value** (amount of energy released on complete combustion) to CNG; can replace CNG in **automotive, industrial & commercial** sectors.
- Supports **net zero emissions**; converts organic waste to fuel; promotes **circular economy**; cuts **oil imports**; aims to raise **natural gas share** (currently ~6%, targeted **15% by 2030**).
- **India’s Initiatives:** **SATAT (Sustainable Alternative Towards Affordable Transportation) Scheme:** Utilises **62 MMT waste/year** to produce CBG.
 - **National Cooperative Development Corporation (NCDC):** To support **15 sugar mills for CBG & potash units**.

Prime Minister Dhan-Dhaanya
Krishi Yojana (PMDDKY)

The Centre has announced **100 Aspirational Agriculture Districts** under the **PMDDKY**, aiming to boost farm productivity and rural prosperity.

- **About:** The **PMDDKY** announced in the **Union Budget 2025** to make farming easier, modern, and more profitable.
 - It is modeled after the **NITI Aayog’s Aspirational Districts Programme (ADP)**, but focused exclusively on **agriculture and allied sectors**.

- **PMDDKY** has no separate budgetary allocation, it converges budgets of **36 existing schemes** from 11 departments, including **Pradhan Mantri Kisan Samman Nidhi** (cash transfers), **Pradhan Mantri Fasal Bima Yojana** (crop insurance), and **Pradhan Mantri Krishi Sinchayee Yojna** (irrigation) with an annual outlay of Rs 24,000 crore from 2025-26 to 2030-31, totaling Rs 1.44 lakh crore.

- **Key Objectives:** Enhancing **agricultural productivity** and farmer income.
 - Promoting **crop diversification** and sustainable farming practices.
 - Expanding **post-harvest storage** and value addition.
 - Support **women, youth, and allied sectors** (e.g., dairy, fisheries, poultry) to diversify income sources.
 - Achieve **self-sufficiency in foodgrains, pulses and oilseeds** to reduce India’s dependence on imports.
 - Strengthening **irrigation infrastructure** and improving access to both **long-term and short-term agricultural credit**.
- **Implementation:** **PMDDKY** operates under the Ministry of Agriculture and Farmers’ Welfare, each selected district will set up a **District Dhan-Dhaanya Krishi Yojana (DDKY) Samiti**, chaired by the District Collector, to implement the **District Agriculture Development Plan (DADP)**.

Aspirational Districts Programme

- **About:** The **ADP**, launched in 2018, targets 112 underdeveloped districts to improve health, nutrition, education, infrastructure, and economic opportunities.
- **3Cs Framework:**
 - **Convergence:** Coordination between various central and state schemes.
 - **Collaboration:** Involvement of district, state, and national agencies.
 - **Competition:** Healthy competition among districts to drive development.
- **Data-Driven Governance:** Progress is tracked using a public platform, the **Champions of Change Dashboard**, which monitors 49 indicators across five areas.
 - The **delta ranking system** measures progress against each district’s past performance, encouraging continuous improvement.
- **Success Stories:** **Chamba (Himachal Pradesh)**, achieved 100% tap water coverage and full financial inclusion under **PMJDY**, and **Andhra Pradesh**, with two districts ranking in the top 10.
 - **ADP’s** localized, inclusive governance model has gained **global recognition**, including praise from Singapore, as a replicable approach for empowering communities and strengthening local health systems.

Tribal Village Vision 2030

On 2nd Oct 2025, tribal villages across India adopted **Tribal Village Vision 2030 Declaration** via **Special Gram Sabhas**, aligning local goals with **Viksit Bharat@2047**.

- **Focus Areas:** Education, health, infrastructure, livelihoods, financial inclusion.
- **Key Features:**
 - **Community-Led Development:** Transect Walks, Focused Group Discussions (FGDs), and Gap Analysis for local needs.
 - **Integration with Schemes:** PM JANMAN, Dharti Aaba Janjatiya Gram Utkarsh Abhiyan 2.0, etc.
 - **Institutional Mechanism:** **Adi Sewa Kendras** as single-window citizen service centres; 1-hour voluntary service by villagers.
 - **Tech-Enabled Governance:** AI-powered **Adi Vaani App** for real-time communication in native languages.

NOTE:

- 15th Nov 2024 – 15th Nov 2025 declared as **Janjatiya Gaurav Varsh**.
- On 17th Sept 2025, **Adi Karmayogi Abhiyan** launched as world's largest tribal grassroots leadership mission, covering 11.5 cr+ tribals in 1 lakh villages/tolas across 30 States/UTs.

Cyclone Shakhti

Cyclone Shakhti, a name given by **Sri Lanka**, which originated in the **Arabian Sea**, has strengthened into a **severe cyclonic storm (SCS)** with wind speeds reaching **100 kmph**.

Cyclones

- **About: Cyclones** are fast air circulations around low-pressure areas, rotating **anticlockwise in the Northern Hemisphere** and **clockwise in the Southern**, often causing storms and severe weather.
- **Cyclone Formation in Arabian Sea:** The **Arabian Sea**, particularly its **central and southern parts**, serves as a **warm pool** with ideal **Sea Surface Temperature (SST)** (at least **27°C**) favourable for cyclone formation.
 - Also, the **Madden-Julian Oscillation (MJO)** is a large weather system that moves eastward around the tropics.
 - ❖ When its **active phase** is over the Arabian Sea, it creates **favorable conditions** for cyclones — including **more moisture**, **low wind shear**, and **strong upward air movement**.
- **Classification of Cyclones:** **IMD** classifies **low-pressure systems** in the Bay of Bengal and Arabian Sea by **damage potential**, following **World Meteorological Organization (WMO)** guidelines.

- **Naming of Cyclones:** The **WMO/ESCAP (United Nations Economic and Social Commission for Asia and the Pacific) Panel on Tropical Cyclones**, which includes **13 North Indian Ocean countries**, manages cyclone naming for the **Arabian Sea and Bay of Bengal**.

- The panel has a **pre-set list of names** submitted by 13 countries to be used **sequentially**.
- Names are chosen in order, **column by column**, regardless of where the cyclone forms.

NAVYA Initiative

Nurturing Aspirations through Vocational Training for Young Adolescent Girls (NAVYA) initiative, under **PMKVY 4.0**, empowers adolescent girls (aged 16-18) with vocational training in emerging job sectors.

- **Launched on 24th June 2025**, a collaboration b/w Ministry of Skill Development and Entrepreneurship (MSDE) & Ministry of Women and Child Development (MWCD).
- **Currently piloted in 9 districts across 9 states:** Maharashtra, Gujarat, Karnataka, Punjab, UP, Bihar, MP, Jharkhand, Himachal Pradesh.
 - Targets **3850 girls in 27 Aspirational & North-Eastern districts in 19 states**.

Key Objectives

- | | |
|---|--|
| <ul style="list-style-type: none"> ■ Demand-driven training in technology, healthcare, and modern roles (AI, digital marketing). ■ Holistic development— modules on health, hygiene, financial literacy, life skills, legal awareness (POSH & POCSO). | <ul style="list-style-type: none"> ■ Promote employability & entrepreneurship. ■ Gender-inclusive skilling— female-friendly spaces, stipends, flexible schedules. ■ Bridge education & livelihood, especially in remote areas. |
|---|--|

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- Launched on **15th July 2015**, the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) promotes skill development by offering free, short-term training and monetary rewards for youth skill certification.
- **PMKVY 2016-2020** expanded its sectoral and geographic reach, aligning with national initiatives like **Make in India** and **Digital India** to enhance industry relevance and youth employability.

Phosphine on Brown Dwarf Wolf 1130C

For the first time, **James Webb Space Telescope (JWST)** has detected **phosphine (PH₃)** in the atmosphere of brown dwarf Wolf 1130C (in the **Cygnus constellation**).

- **Brown Dwarf:** A celestial object with mass between a planet and a star, unable to sustain hydrogen fusion, called a “failed star.”

Phosphine

- **Colorless, flammable, and toxic to humans; detected in the atmosphere of Venus in 2020.**
- **Production:**
 - **Biological:** Produced by anaerobic bacteria in **oxygen-poor environments** like landfills, marshes, and animal guts.
 - **Non-Biological:** Synthesized by reacting white phosphorus with alkali (like sodium hydroxide) or hydrolysis of metal phosphides.
- **Applications:** Used as a fumigant pesticide to protect stored grains and in microchip fabrication as a dopant.

Toxic Chemical Diethylene Glycol in Cough Syrup

Food and Drugs Administration (FDA), Bhopal, found Coldrif cough syrup **contained 46.28% Diethylene Glycol (DEG), well above the 0.1% limit**, leading to state-level bans and nationwide regulatory action under **Drugs and Cosmetics Act, 1940**.

- DEG is **colourless, sweet-tasting industrial chemical**.
- Commonly used in brake fluids and antifreeze; used as a **cheap solvent in drug production**.
- Causes abdominal pain, vomiting, kidney failure, nervous system damage, and **can be fatal at high doses**.

Drugs and Cosmetics Act, 1940

- Regulates the **import, manufacture, sale, and distribution of drugs & cosmetics in India** through licences and permits.
- **Drugs and Cosmetics Rules, 1945**, classifies medications into schedules and provides guidelines for storage, sale, presentation, and prescription.

7th Moscow Format Talk on Afghanistan

At 7th **Moscow Format Consultations on Afghanistan**, India joined Taliban, Pakistan, China, and Russia in **opposing Trump's plan to take control of Bagram air base, Afghanistan's largest**, which was vacated by US forces before their 2021 withdrawal from Afghanistan.

Moscow Format Consultations on Afghanistan

- **About:** It is a **regional diplomatic platform** launched by Russia in 2017 to promote dialogue among **Afghanistan's neighboring countries** and other key stakeholders.
- **Objective:** It promotes **peace, stability, and development in Afghanistan** through **multilateral cooperation** and is part of dialogue mechanisms initiated before the **Taliban takeover of Afghanistan in 2021**.
- **Membership:** Its **original members** included Russia, India, Afghanistan, Iran, China, and Pakistan, with **five Central Asian countries** joining later to broaden its diplomatic reach.



New START Treaty

Russia has welcomed the **US President's support for extending the New Strategic Arms Reduction Treaty (START) by one year**, following Russia's suspension of its participation in 2023.

- **START-I signed in 1991 b/w US & USSR** and came into force in 1994.
 - **New START**— signed in 2010, entered into force in 2011, valid until 2026.
- **Sets limits on 700 deployed ICBMs, SLBMs, bombers, 1,550 nuclear warheads, and 800 deployed and non-deployed launchers/bombers.**
- Includes **on-site inspections**, data sharing, notifications & **Bilateral Consultative Commission (BCC)**.
- Does not cover **non-deployed or non-strategic nuclear weapons**.
- Russia cites **US space-based Golden Dome interceptors** and intermediate-range missiles as threats, while US is concerned about **Russia's Kinzhal missiles and Avangard hypersonic glide vehicles**.

NOTE: Russia & US hold 87% of the world's nuclear warheads, enough for multiple global destructions.

Very Large Gas Carrier (VLGC) Shivalik

India received its **3rd Very Large Gas Carrier (VLGC) Shivalik** under the **Indian flag at Visakhapatnam Port**, marking a milestone in **maritime self-reliance and energy security**.

- The induction of Shivalik by the **Shipping Corporation of India (SCI)** enhances **Atmanirbharata in shipping** and strengthens **India's energy trade connectivity**.
- **Size & Capacity:** VLGC Shivalik, vessel is **225 meters long** with **82,000 cubic metres (CBM) capacity**, designed to

carry large volumes of **liquefied petroleum gas (LPG)**, including **propane and butane**.

- **Engineering:** It features segregated tanks, advanced temperature control, and meets global safety and efficiency standards.
- **Strategic Significance:** Built under the Indian flag in **South Korea**, Shivalik reduces India's **reliance on foreign-flagged vessels for energy imports** and strengthens **India's energy security and connectivity with the Arabian Gulf**.
- **Maritime Self-Reliance:** It represents India's growing **Atmanirbharata** in shipping and contributes to the goal of becoming a **top-five maritime nation by 2047**.
 - India aims for an end-to-end maritime ecosystem with **build, own, repair, and recycle**, enhancing EXIM efficiency and contributing to **Viksit Bharat 2047**.
- **Domestic Shipbuilding Push:** Policies like **Shipbuilding Financial Assistance Scheme (SBFAS)**, **Maritime Development Fund (MDF)**, and **Shipbuilding Development Scheme** promote local shipbuilding, repair, and recycling.

NATPOLREX

The **Indian Coast Guard (ICG)** successfully conducted the **10th National Level Pollution Response Exercise (NATPOLREX-X)** off Chennai coast.

- **About:** **NATPOLREX-X** is a **biennial exercise** and a key component of India's **marine environmental protection framework**.
- **Objective:** It aims to **strengthen national preparedness, inter-agency coordination, and response to marine oil spills** under the **National Oil Spill Disaster Contingency Plan (NOSDCP)**.
- **Shoreline Drill:** A key highlight of 10th edition was the first-ever **shoreline clean-up drill** at **Marina Beach**, involving **multiple state agencies** in a **simulated incident**.

ICG & Its Role in Marine Environmental Protection

- **Central Coordinating Authority:** ICG has served as the **Central Coordinating Authority** for **oil spill response** in India since **March 1986**.
- **National Policy Framework:** The **NOSDCP**, drafted by the ICG and approved in **1993**, provides the **foundational framework** for **national oil spill preparedness and response**.
 - With over **75% of India's energy** coming from **seaborne oil**, protecting **sea lines and ports** from oil spills is of **strategic importance**.
- **Operational Infrastructure:** To implement the **NOSDCP**, the ICG has set up **four Pollution Response Centres** at **Mumbai, Chennai, Port Blair, and Vadinar**.

Breathable Art

Delhi inaugurates '**Breathable Art**', part of '**Breath of Change – Clean Air, Blue Skies**' campaign held under Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP) of **Environment Education, Awareness, Research and Skill Development (EEARSD) Scheme**.

- **Breathable Art:** Living structure using **air-purifying plants** like **Areca palm, snake plant**, and **peace lily** to raise awareness on air pollution and sustainable urban living.
 - Serves as an educational hub, **using QR codes to explain plants' air-cleaning roles**, their impact on urban green spaces, and nature-based air quality solutions.
- **EEARSD Scheme: Central Sector Scheme by MoEFCC** to promote non-formal environmental education through Eco-clubs, Youth Clubs, and similar groups.

Viksit Bharat Buildathon 2025

Viksit Bharat Buildathon 2025 is **organized by Ministry of Education in collaboration with Atal Innovation Mission (NITI Aayog)**.

- **About:** Nationwide innovation initiative for students (**classes 6-12**), aligned with NEP 2020.
- **Themes:** Focus on **Atmanirbhar Bharat, Swadeshi, Vocal for Local, and Samridh Bharat**.
- **Inclusive Participation:** Special focus on students from **Aspirational Districts, Tribal Regions & Remote Areas**.
- **Awards & Support:** Offers **Rs. 1 Crore award pool** for **National, State, and District level winners**.

SC Halts Aravalli Jungle Safari Over Ecological Concerns

SC has temporarily **halted Aravalli Jungle Safari Project in Haryana** due to environmental concerns over its impact on the ecologically sensitive region.

- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Aravalli Range: Considered one of the oldest mountain systems, spanning 800 km from Gujarat to Delhi (through Rajasthan & Haryana). ■ Highest Peak: Guru Peak (Guru Shikhar) on Mount Abu (Arbuda). ■ Rivers: Give rise to Banas, Sahibi, and Luni rivers. | <ul style="list-style-type: none"> ■ Sections: Divided into Sambhar-Sirohi (including Guru Peak) & Sambhar-Khetri ranges. ■ Significance: Rich in minerals and natural resources, acts as a barrier to the western desert. ■ Terrain: Densely forested in the south, rocky, sparsely populated, with quartzite and sand. |
|---|---|

Aravalli Jungle Safari Project: Announced in 2022; **Goal:** To build world's largest jungle safari; **Inspiration:** **Sharjah Safari (UAE) & Gir Sanctuary (Gujarat)**.

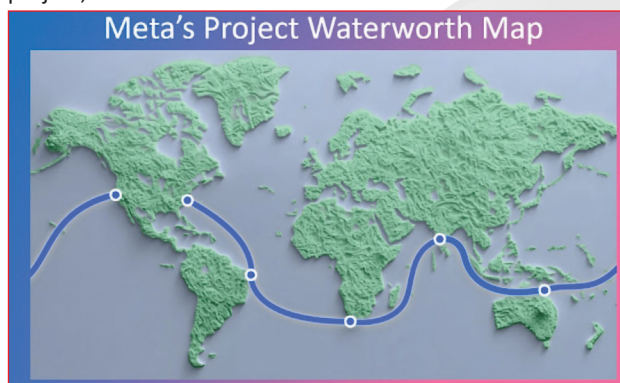
NPCI Tech Solutions Limited

During Global Fintech Fest 2025 in Mumbai, **NPCI revealed establishment of its new subsidiary, NPCI Tech Solutions Limited (NTSL)**

- **Previous Subsidiaries**— NPCI BHIM Services Limited (NBSL), NPCI International Payments Limited (NIPL), and NPCI Bharat BillPay Limited (NBBL).
- **Global Fintech Fest**: A global platform for fintech innovation and collaboration, **established in 2020** as a benchmark for sector dialogue and action.
 - **Organisers**: Jointly organized by Payments Council of India (PCI), NPCI, and Fintech Convergence Council (FCC).

Project Waterworth

Meta Platforms has selected Mumbai & Visakhapatnam as landing sites for its multibillion-dollar undersea cable project, Waterworth.



- Initiative by Meta Platforms to strengthen global data connectivity, **linking US, India, Brazil & South Africa**, spanning over 50,000 km.
- W-shaped route **bypassing Red Sea corridor** to reduce geopolitical risks & cable damages.
- **Operational by 2030**, with a design capacity of 1 petabit/second.

Paramparagat Krishi Vikas Yojana (PKVY)

Over the past 10 years, **Paramparagat Krishi Vikas Yojana (PKVY)** has become a cornerstone of India's sustainable agriculture initiatives.

- Due to soil degradation, water pollution, and chemical residues, India launched PKVY in 2015 to promote **organic farming**, increase farmer incomes, and support sustainable agriculture.

Paramparagat Krishi Vikas Yojana

- **About**: PKVY is part of the **Soil Health Management (SHM) component under the National Mission on Sustainable Agriculture (NMSA)**.

- The scheme aims to support and promote organic farming, leading to improvements in soil health.
- Promotes the **Participatory Guarantee System (PGS) for India**, a locally relevant organic certification based on mutual trust, involving both producers and consumers.

❖ PGS-India operates outside the **"Third Party Certification"** system.

■ Funding Pattern:

- **Central and State Governments** share the funding in a 60:40 ratio.
- **For North Eastern and Himalayan States**, the funding ratio is 90:10 (Centre: State).
- **For Union Territories**, the assistance is fully funded by the Central Government (100%).

- **Eligibility**: All farmers and institutions are eligible to apply. However, the maximum landholding for eligibility is **2 hectares**.

■ Key Features of PKVY

- **Cluster-Based Approach**: Farmers are organised into clusters of 20 hectares each, enabling shared resources, uniform standards, and cost reduction.
- **End-to-End Support**: The scheme supports farmers from production to processing, certification, and marketing.
- **Training & Capacity Building**: Farmers receive guidance on organic techniques, soil fertility improvement, and diversified cropping systems.
- **Market Linkages**: Encourages direct access to local and national markets, fostering entrepreneurship.
 - ❖ The Jaivik Kheti Portal has been developed as a dedicated online platform to promote the direct sale of organic products from farmers to consumers.

■ Key Benefits Offered Under the Scheme

- Under PKVY, **farmers transitioning to organic farming receive ₹31,500** per hectare over a **three-year** period.
- The **largest portion** of this support is allocated for **on-farm and off-farm organic inputs**.

Types of Organic Certification in India

- **Third-Party Certification (NPOP)**: Managed by accredited agencies under the **National Programme for Organic Production (NPOP)**, it ensures compliance with international standards across production, processing, trading, and exports, enabling Indian farmers to access global organic markets.
- **Participatory Guarantee System (PGS-India)**: A farmer-centric, community-based certification under the Ministry of Agriculture, where farmers collectively verify practices and declare produce as organic, primarily serving domestic markets and supporting small and marginal farmers.

Maitri II Research Station in Antarctica

Ministry of Finance has given **in-principle approval** for setting up **Maitri II**.

- **About:** India's upcoming & 4th research station in Antarctica, to be completed by **Jan 2029**; strengthens India's scientific presence under **Antarctic Treaty System (1959)**; replaces old **Maitri station (1989)**.
- **Nodal Agency:** Led by National Centre for Polar and Ocean Research (NCPOR), under **MoES**.
- **Features:**
 - Bigger than original Maitri, planned as a "green research base."
 - Uses solar power for summer & wind energy to harness Antarctic winds.
 - Automated instruments enable data relay to India even when unmanned.
- **Significance:** Antarctica holds **75% of Earth's freshwater**; studying ice sheets aids sea-level rise forecasts.
 - Crucial for **understanding untapped mineral deposits**, marine biodiversity, and ecological baselines. Reinforces India's role in global climate & polar governance.

Station	Details
Dakshin Gangotri (1983)	■ Est. under Indian Antarctic Programme (1981) led by NCPOR ■ Submerged in ice, decommissioned in 1990
Maitri (1989)	■ Located in Schirmacher Oasis ■ Near Lake Priyadarshini, a freshwater lake created by India
Bharati (2012)	■ Located ~3,000 km east of Maitri; lies b/w Thala Fjord and Quilty Bay ■ Compact design, supports year-round scientific research

Google's AI Hub in Visakhapatnam

Google is establishing India's first **gigawatt-scale data center & AI hub** in **Visakhapatnam**.

- Investment of **~USD 15 Bn (2026–30)**, India's largest investment by Google, aligns with **Viksit Bharat Vision** to expand **AI-driven services**.
 - Expected to generate **Rs 10,000 cr in revenue**, boosting **state GDP** and **regional development**, strengthening India's **global digital infrastructure**.
- **Data Center**— facility to store & manage IT infrastructure, evolving into **cloud** and **hyperscale** facilities serving multiple clients.

Information Technology (IT) Act, 2000

MeitY held a national workshop to **clarify the issuance of notices under Sections 69A and 79(3)(b) of IT Act, 2000**,

ensuring legal clarity and constitutional balance in regulating digital content.

- **IT Act, 2000:** Primary legislation for governing cyber activities, including e-commerce, digital signatures, and cybercrimes.
- **Features:** Legitimizes electronic records & digital signatures; Establishes **CERT-In as nodal agency** for cybersecurity; Defines intermediary responsibilities; Forms **Appellate Tribunal** for dispute resolution.

Key Provisions	
■ Section 69A: Empowers govt. to block access to content threatening national security, public order, or foreign relations. ■ Section 79: Grants safe harbour protection to intermediaries for user-generated content. ■ Section 79(3)(b): Removes safe harbour if intermediaries fail to block/remove unlawful content after govt. notification.	■ Rule 3(1)(d) of IT Rules, 2021: Specifies due diligence for intermediaries to remove or disable unlawful content upon actual knowledge. ■ Section 66A: Struck down by the SC in <i>Shreya Singhal vs. UOI (2015)</i> for being unconstitutional and vague, restricting free speech (Article 19(1)(a)).

BHARAT TAXI

India is set to launch **Bharat Taxi**, a **cooperative-based, citizen-first national ride-hailing platform**, aligning with Digital India vision of inclusive & transparent public services.

■ Collaboration: B/w National e-Governance Division (NeGD), Digital India Corporation, MeitY & Sahakar Taxi Cooperative Limited. ■ Aim: To create a secure, interoperable, and citizen-centric mobility platform.	■ Features: Integrated with DigiLocker, UMANG & API Setu for seamless identity verification & service delivery. ■ Follows Govt. data protection norms & robust cybersecurity standards. ■ Offers multilingual interfaces & inclusive access for all citizens.
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National 'Red List' Assessment Initiative

India launched **National Red List Assessment Initiative (2025–30)** to evaluate the conservation status of its flora & fauna, **announced at IUCN World Conservation Congress** in Abu Dhabi.

- **About:** Aims to identify & protect India's most vulnerable species based on IUCN standards, **evaluating ~11,000 species (7,000 flora, 4,000 fauna)**.
- **Implementing Bodies:** Led by MoEFCC, with BSI, ZSI & WII.
- **Global Biodiversity Commitments:** Fulfills **Target 4 of Kunming-Montreal Framework**, addressing species extinction, genetic diversity, and human-wildlife conflicts.

- **India's Species Status:** Of the assessed fauna, 13.4%—**threatened**, 289 species— **near threatened**, 13.8%-- **data deficient**; India shows high endemism, with **79% amphibians and 54.9% reptiles found only in India**.

IUCN World Conservation Congress, known as the "Olympics of Conservation," is the world's largest conservation event, held once every four years.

Limestone Reclassified as Major Mineral

Ministry of Mines has reclassified all limestone as a major mineral, removing previous end-use distinctions to promote ease of doing business. Previously, limestone used for lime in construction was a minor mineral.

- **Limestone:** A sedimentary rock mainly made of calcium carbonate (CaCO₃), often containing dolomite, clay, quartz, etc. It has a granular texture, with grains ranging from microscopic to visible shell fragments.
- **Significance:** Rich in fossils, aids in studying Earth's history, and provides phosphate for fertilizers. When heated, it produces lime for glass manufacturing, agriculture, and industries, with some varieties used as building stones.

Major Minerals	Minor Minerals
Listed in the Mines and Minerals (Development and Regulation) Act, 1957, including Calcite, Clay, Coal, Quartz, and others, used in large-scale industrial applications.	Defined under Minor Mineral Concession Rules (under MMDR Act) by State Govts, include materials like building stones, gravel, ordinary clay, and decorative stones; minerals notified by Central Govt. as minor also fall under this category.

UNESCO's Virtual Museum of Stolen Cultural Objects

UNESCO has launched a Virtual Museum of Stolen Cultural Objects, a digital platform to reconnect communities with stolen heritage and combat illicit trafficking of cultural artifacts.

■ Launched at World Conference on Cultural Policies and Sustainable Development (MONDIACULT 2025), a ministerial forum of 194 UNESCO Member States hosted by Spain.	■ Indian Artifacts Featured: ● Nataraja Figure: 9th-century sandstone sculpture from Mahadev Temple, Pali, Chhattisgarh, representing Shiva's cosmic dance. ● Brahma Sculpture: Three faces, four arms, seated in Lalitasana, symbolizing creation & knowledge.
■ Showcases ~240 missing objects from 46 countries using AI-generated 3D models and interactive access, with numbers decreasing as items are returned.	

Northeast Monsoon

Timely northeast monsoon (Oct 2025) has brought relief to TN & Andhra Pradesh, vital for their agriculture & water security.

- **Onset:** As the southwest monsoon (June to Sept) begins to fade, the northeast monsoon sets in by Oct; known as retreating monsoon
- **Characteristics:** Shorter & less widespread than southwest monsoon
- **Mechanism:**
 - Land cools faster than ocean → creates high pressure over Indian subcontinent and a low-pressure area over surrounding seas.
 - Direction of Wind flow reverses and winds blow from land to sea (northeasterlies)
 - Before reaching coast, winds absorb moisture from Bay of Bengal; provide abundant moisture for rainfall activity in TN, south Andhra Pradesh and parts of Sri Lanka.

GHG Emission Intensity (GEI) Target Rules, 2025

MoEFCC has notified first legally binding GEI Rules, 2025 to reduce industrial emissions.

- Rules set legal limits on GHG emissions per unit of product output and aim to operationalise India's Carbon Credit Trading Scheme (CCTS), 2023, supporting commitments under Paris Agreement 2015.

"Fare Se Fursat" Fixed Airfare Scheme

- **Launched by:** Ministry of Civil Aviation; implemented by Alliance Air (Govt-owned regional carrier).
- **Objective:** Reform dynamic pricing with transparent, stable, and affordable fares for regional routes.
- **Key Features:**
 - **Fixed Fare System:** One constant fare — even for same-day bookings.
 - **Supports UDAN Mission:** Promotes affordable air travel for middle and lower-middle classes.
 - **Passenger Benefits:** Predictable travel cost, reduced booking stress, boost to first-time flyers.
- **Aviation Sector Snapshot:**
 - **India:** 3rd-largest domestic aviation market (after USA, China).
 - **FY23 domestic traffic:** 306.79 million (+13.5% YoY); international: 69.64 million (+22.3%).
 - **Operational airports:** 74 (2014) → 157 (2024); target 350–400 by 2047.

Key Features	Compliance Mechanism	Significance
- Sets GHG emission limits for industries like aluminium, cement, chlor-alkali, and pulp & paper. 282 industrial units must comply for FY 2025-26 and 2026-27. - Emission intensity measured in tCO₂e (tonnes of CO₂ equivalent).	- Industries can earn carbon credits (issued by BEE) for reducing emissions below the target. Penalties for non-compliance— buy carbon credits to cover their shortfalls or face penalties from CPCB.	- Carbon credits can be traded on CCTS, creating a financial market for carbon reduction. Moves beyond the PAT scheme by establishing a formal market for trading carbon credits, not just promoting energy efficiency.

Carbon Credit Trading Scheme, 2023

- About:** The **CCTS** is a **market-based mechanism** to **price GHG emissions** and **trade carbon credits**, aiding India's decarbonization.
- Framework:** CCTS introduces **carbon pricing** via two mechanisms:
 - Compliance Mechanism:** Mandates **energy-intensive industries** to meet **sector-specific GHG targets**; exceeding targets earns **Carbon Credit Certificates (CCC)**, shortfalls require **purchasing credits**.
 - Offset Mechanism:** Enables **voluntary entities** to earn **carbon credits** by reducing emissions.
- Supervision:** It is supervised by several government bodies, including the **BEE** and the **National Steering Committee for Indian Carbon Market (NSCIM)**.

Graded Response Action Plan (GRAP)

CAQM invoked **Stage-I of GRAP** as Delhi's AQI entered the 'Poor' category.

- Framework to control air pollution in **Delhi-NCR**, formulated under **M.C. Mehta v. Union of India (2016)**; implemented since **2017** by **CAQM** under **MoEFCC**.

Stages of GRAP

- Stage I – Poor (AQI 201–300):** Road dust control, vehicle PUC checks.
- Stage II – Very Poor (301–400):** Limit diesel gensets, control hotspot emissions.
- Stage III – Severe (401–450):** Restrict vehicles, ban construction, online classes.
- Stage IV – Severe+ (>450):** Ban heavy vehicles, close schools, halt industries.

CAQM

- Statutory body under **CAQM Act, 2021**.
- Jurisdiction: **NCR + adjoining states** (Punjab, Haryana, Rajasthan, UP).
- Apex agency for air quality management, accountable to **Parliament**.

Air Quality Index (AQI)

- Launched by **MoEFCC** under **Swachh Bharat Mission**.
- Tracks **8 pollutants** (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃, and Pb); 6 categories (Good, Satisfactory, Moderately Polluted, Poor, Very Poor, and Severe).
- Promotes public awareness via **"One Number – One Colour – One Description."**

Extension of 16th Finance Commission Tenure

The **16th FC tenure** has been extended by one month, now due on 30th November 2025. Initially, the report was scheduled for 31st October 2025 for the 2026–31 period.

- About:** Constituted by the President under **Article 280 of the Constitution**, every five years. The report is submitted to the President, who places it before Parliament.
- Composition:**
 - Chairperson and four members appointed by the President.
 - The Chairman must have public affairs experience, while members must have expertise in law, government finance, financial administration, or economics.
- Term:** Members hold office for a specified term and can be reappointed.
- Functions:** Advises the President on **tax distribution between Centre and states**, grants-in-aid to states, and measures to augment funds for local bodies.

Green Crackers

SC has lifted the blanket ban on fireworks in Delhi-NCR, allowing **NEERI & PESO-approved green crackers** for **Deepavali 2025**. Court termed this a **"test case"** to balance festive celebrations with pollution control, citing issues with smuggling & harmful firework use under total bans.

- Emission Control:** Smaller shell size, no ash, less raw material, addition of dust suppressants; **≥30% PM reduction**, or **20% PM + 10% SO₂/NO₂ reduction** vs conventional crackers.
- Types: Improved Fireworks**— Cleaner versions of existing crackers; **New Formulation Fireworks**— Made with new materials to cut emissions.

- **Arjun Gopal vs Union of India (2018)** – SC banned non-certified crackers with **barium salts**, allowed only **PESO-approved green crackers**.

GPS Spoofing

An **Air India** flight from **Vienna to Delhi** was diverted due to **suspected GPS signal spoofing** over **Middle East**, causing failures in **autopilot, autothrust, flight director, and autoland** functions.

- **About:** Cyberattack where fake GPS signals mislead receivers, causing incorrect **position, navigation, or time** info.
- **Mechanism:** Attackers use **ground-based transmitters** to override genuine satellite signals, leading to **incorrect readings**.
- **Difference from Jamming:** **Spoofing** feeds **false data**; **jamming** blocks/disrupt signals.
- **Mitigation:** Use **Inertial Reference Systems (IRS)**, **anti-spoofing tech**, **multi-constellation GNSS**, **advanced signal processing**, and **pilot training**.

United Nations Global Geospatial Information Management (UN-GGIM)

India has been elected as the **Co-Chair of the United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP)** for the **2025-2028 term**.

- Geospatial data is **time-based data** that is related to a specific location on the Earth's surface. It can provide insights into relationships between variables and reveal patterns and trends.
- The Co-Chair election reflects India's rising influence in **geospatial innovation, capacity building, and regional cooperation** across Asia-Pacific nations.
- India will focus on **secure digital transformation, good governance, and data-driven decision-making** under the **UN-GGIM Strategic Framework**.

UN-GGIM

- Led by **UN Member States**, UN-GGIM aims to address global challenges regarding the use of geospatial information, including in the development agendas, and to serve as a body for global policymaking in the field of geospatial information management.
- **UN-GGIM-AP, one of five regional UN-GGIM committees**, represents 56 Asia-Pacific nations and promotes geospatial cooperation, capacity building, and shared solutions for economic, social, and environmental benefits.

China Challenges India's EV Subsidies at WTO

China has approached the **World Trade Organization (WTO)** against India, alleging that the country's **electric vehicle**

(EV) and battery subsidies provide an **"unfair competitive advantage"** to domestic manufacturers.

- **Allegations by China:** China claims India's subsidies breach **WTO obligations**, including the **national treatment principle** (requiring that imported goods be **treated no less favorably than domestic goods once they enter the market**).
 - India's EV subsidies on best-selling vehicles (including GST cuts, tax waivers, and PLI support) offer **around 46% cost aid**, far higher than the 10–26% subsidy levels in other major economies.
 - China argues these measures breach the **WTO's Agreement on Subsidies and Countervailing Measures** (which provides rules for use of government subsidies and remedies to address subsidized trade) by favouring Indian producers and distorting fair competition.
 - China also claims that the subsidies also amount to **prohibited import substitution subsidies** (government financial aid for **companies that are conditional on using domestic goods instead of imported ones**, a practice deemed to distort international trade unfairly), favoring domestic EV industries over foreign competitors.
- **Key EV Subsidy Schemes in India:** FAME India Scheme (Faster Adoption and Manufacturing of Electric Vehicles).
 - PM e-Drive Scheme.
 - Production-Linked Incentive (PLI) Scheme for Advanced Chemistry Cell (ACC) Batteries.
 - **State-Level Incentives:** Many states like Karnataka provide additional subsidies, tax exemptions, or reduced registration fees for EVs.

'Darbar Move' Returns in Jammu & Kashmir

After a four-year break, the **Darbar Move**, the 150-year-old **biannual transfer** of Jammu and Kashmir's **Civil Secretariat** and government offices between **Srinagar (summer capital)** and **Jammu (winter capital)**, is set to resume this winter.

- **Historical and Administrative Significance:** It was started in **1872** by **Maharaja Gulab Singh (1st Dogra ruler of erstwhile J&K State)** to bring **administration closer to the people**, addressing the challenges of **poor road connectivity** between regions.
 - It **continued post-independence**, becoming a symbol of **regional integration** between Jammu and Kashmir.
- **Interruption in Practice:** A **2020 J&K High Court** ruling observed that there was no **"legal justification or Constitutional basis"** for the Darbar Move.
 - In **2021**, LG's administration had taken the decision to **end the practice of Darbar Move** and projected it would save the government Rs 200 crore every year.

- **Implications:** Revival of the traditional “Darbar Move” can reinforce regional parity in **post-Article 370 governance** and boosts local economies in host cities during each move.
 - However, challenges such as logistical strain, disruption of administrative continuity, and environmental and security concerns persist.

- **Maharaja Gulab Singh:** He founded the princely state of Jammu & Kashmir (J&K) in 1846, was a direct descendant of the Jammu ruling family, and part of the renowned **Dogra Trio** alongside his brothers **Dhian Singh** and **Suchet Singh**.
- He joined **Maharaja Ranjit Singh's court** in **Lahore** and became a prominent **military commander**.

Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme

Finance Minister announced the release of ₹3,791.1 cr to States & UTs under PM-FME Scheme.

- **Launched:** 29 June 2020, under **Atmanirbhar Bharat Abhiyan**; **Duration:** 2020–26, total outlay of ₹10,000 cr.
- **Purpose:** Strengthen micro food enterprises, promote ‘Vocal for Local’ products; integrate rural entrepreneurs into formal economy.

Key Features

- | | |
|---|--|
| <ul style="list-style-type: none"> ■ Common Infrastructure: 35% credit-linked subsidy, up to ₹3 cr for food processing units with shared facilities by FPOs, Cooperatives, SHGs, and Govt. agencies. ■ Credit-Linked Subsidy: 35% subsidy, up to ₹10 lakh for setting up or upgrading units for individuals, FPOs, NGOs, Cooperatives, SHGs, Pvt. Ltd. firms. ■ ODOP: Promotes scale, value chain development, marketing for 137 products in 713 districts across 35 States/UTs. | <ul style="list-style-type: none"> ■ Seed Capital for SHGs: ₹40,000/member, up to ₹4 lakh per SHG for working capital and small tools, disbursed through SHG federations. ■ Marketing & Branding: 50% grant for branding and marketing initiatives by FPOs, SHGs, Cooperatives or SPVs. ■ Capacity Building: Training under Food Processing Entrepreneurship Development Programme. |
|---|--|

India's Digital Public Platforms (DPPs)

The **RBI Governor** highlighted India's vision to make digital innovations such as **UPI** and **Modular Open-Source Identity Platform (MOSIP)** global public goods, reaffirming the country's commitment to international collaboration on **Digital Public Platforms (DPPs)**.

DPPs

- **About:** DPPs are **open, interoperable digital infrastructure solutions** providing key public services, including:

- Digital identity (e.g., Aadhaar)
- Digital payments (e.g., UPI)
- Data exchange frameworks (e.g., DigiLocker, Account Aggregator).

Core Features:

- **Open Architecture:** Encourages **innovation** by both private and public players.
- **Interoperability:** Supports **seamless integration** across sectors.
- **Scalability:** Manages **large user volumes** efficiently and cost-effectively

- **India's Global Positioning in DPPs:** India is recognized as a **global leader** in **DPP innovation and implementation**, with systems like **UPI** being studied or adopted by countries including **France, Singapore, We, and Sri Lanka, etc.**

- A **1% increase in UPI transaction volume** correlates with a **0.03% rise in GDP growth**.

MOSIP: It is a free, secure, and scalable system for building national digital identity systems, developed at **IIIT-Bangalore**. It is being adopted or explored by **27 countries** to design and manage their own digital identities.

Lunar Exosphere

India's **Chandrayaan-2 lunar orbiter** has made a path-breaking scientific observation - for the **first time ever**, it has detected the effects of the **Sun's Coronal Mass Ejection (CME)** on the **Moon's exosphere**. The findings were obtained using **CHACE-2 (Chandra's Atmospheric Composition Explorer-2)**, one of the principal scientific instruments onboard the orbiter.

- **Lunar Exosphere:** The Moon's atmosphere is extremely thin and classified as an exosphere, where gas atoms and molecules rarely collide. Its surface forms the **lower boundary** of this exosphere.

- The lunar exosphere contains gases such as **helium, argon, and neon**, with traces from radioactive decay, solar wind, and meteoroid impacts.
- Due to its low density, it cannot retain heat, causing **extreme temperature variations**.
- This fragile atmosphere is produced by several processes, including:
 - ❖ Interaction with **solar radiation** and **solar wind** (ions of hydrogen, helium, and heavier elements).
 - ❖ **Meteorite impacts** that release atoms and molecules from the lunar surface.

- **Coronal Mass Injection:** A **Coronal Mass Ejection (CME)** is a massive, violent expulsion of plasma (**a superheated gas of protons and electrons**) and magnetic fields from the Sun's outer atmosphere, the corona, that erupts outward into the solar system. It is one of the largest forms of solar activity and a major driver of space weather.