NOVEMBER 2025

ANURAG BACHAN'S IAS

Comprehensive Coverage of

CURRENT AFFAIRS

ENTIRE CONTENT OF OCTOBER 2025

- Polity and Governance
- Art and Culture
- Indian Economy
- Indian Society
- Defence
- Nobel Prize
- Science and Technology
- Environment
- Biodiversity
- Disaster Management

Useful for **IAS / PCS / HCS / HAS & other Exams.**

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INDEX

INDIAN ECONOMY

Global MPI 2025

Report launched 17 October 2025.

Nodal Agencies: UNDP's Human Development Report Office + OPHI (University of Oxford).

Coverage: Data for 109 countries, covering ~6.3 billion people.

Focus: For the first time the MPI is overlaid with climate hazard exposure (high heat, drought, floods, air-pollution) to show how poverty and environmental shocks coincide.

What is the Multidimensional Poverty Index (MPI)

- The MPI complements income-based poverty measures by capturing simultaneous deprivations across three dimensions: health, education and standard of living.
- In the global version, there are 10 indicators (2 in health, 2 in education, 6 in standard of living).
- A deprivation score ≥ 33.3% (i.e., deprived in one-third or more of weighted indicators) makes a household / person "multidimensionally poor".
- Key Components:
  - **Headcount (H)**: proportion of people who are multidimensionally poor
  - **Intensity (A)**: average share of deprivations among poor people
  - **MPI value = H × A**

Key Findings

- Approximately 1.1 billion people (≈18.3% of those covered) live in acute multidimensional poverty.
- More than half of the poor (≈586 million) are children (≈27.8% of all children) vs ≈13.5% of adults.
- Around 640+ million poor people (~64.5%) reside in middle-income countries.
- **Exposure to climate hazards**: About 887 million poor people live in regions facing at least one of the four climate hazards.
  - 651 million face two or more hazards.
  - 309 million live in regions with three or four overlapping hazards.
- **Regional hotspots**:
  - In South Asia: ~380 million poor people; exposure almost universal (99.1%) to at least one hazard; 59% are exposed to 3-4 hazards.
  - In Sub-Saharan Africa: ~565 million poor people, large overlap with hazards.
- **Trends & issues**:
  - While some countries show reductions in MPI, global progress is stagnating especially post-pandemic.
  - Countries with higher multidimensional poverty today are projected to face greater increases in temperature/heat days by 2040-2099.

Findings for India

- In the 2024 global country-profile for India, it is noted: "16.4% of the population in India (233,667 thousand people in 2022) is multidimensionally poor while an additional 18.7% are vulnerable to multidimensional poverty."

- While the 2025 global MPI overlayed climate hazards, India's specific exposure of its poor population to climate hazards is highly relevant though specific numbers for India from the global 2025 report could not be located in open summary sources yet.

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AI Playbooks Launched

PSA Prof. Ajay Kumar Sood launches 'AI Playbooks for Agriculture and SMEs' & 'AI Sandbox White Paper' to accelerate responsible AI adoption across India.

Nodal Bodies:

- Office of the Principal Scientific Adviser to the Government of India (OPSA) – Guided the launch.
- Ministry of Electronics & Information Technology (MeitY) – Involved.
- Ministry of Micro, Small & Medium Enterprises (MSME) – Participated via Secretary.
- Centre for the Fourth Industrial Revolution India (C4IR India), part of the World Economic Forum (WEF) initiative "AI for India 2030".

Key Features/Highlights

- **Three major publications released:**
  1. "Future Farming in India: AI Playbook for Agriculture"
  2. "Transforming Small Businesses: An AI Playbook for India's SMEs"
  3. "Shaping the AI Sandbox Ecosystem for the Intelligent Age: White Paper"
- The initiative aims to place "responsible, inclusive, and scale-driven AI" at the heart of India's digital economy, especially through grassroots transformation.
- **For agriculture:** The "Future Farming" playbook uses the IMPACT AI framework (Government enablement → Industry solutions via sandboxes → Front-line delivery) and focuses on boosting yields, managing risk, improving market access, integrating regional languages and trusted local networks.
- **For SMEs:** The playbook provides a roadmap to democratise AI—moving SMEs from awareness to action via experience centres, sandboxes, AI-marketplace, tools & financing, recognition of pioneers.
- The "AI Sandbox White Paper" sets up controlled environments ("sandboxes") to test and scale AI solutions aligned with India's priorities — emphasising security, reliability, alignment with national goals.
- **Implementation roadmap ahead:** Coalitions of state governments + industry bodies + technology providers + financiers; unified monitoring framework with indicators like AI adoption, productivity gains, cost-reduction, improved credit access, better market realisation; knowledge-platform for best practices and scaling.

Relevance for Exam

- **Digital India / Emerging Tech**: Illustrates how India is shaping policy for the Fourth Industrial Revolution in critical sectors (agriculture, SMEs).
- **Inclusive Growth**: Focus on empowering farmers and SMEs aligns with socio-economic development goals (SDG 2, SDG 8).

- **Tech Governance**: The sandbox model and frameworks highlight regulatory & implementation aspects of technology policy — relevant for GS Paper 2 & 3.
- **Sectoral Linkages**: Agriculture & MSMEs are pivotal for India's economy; showing how AI is being leveraged adds depth to essays/discussion on "technology in rural/agri transformation" and "MSME initiatives".
- **Implementation & Monitoring**: The roadmap emphasises measurable indicators and institutional coalition — useful when writing about policy effectiveness or scheme design.

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RBI Gold Reserves Milestone

- The RBI's gold reserves crossed US $100 billion for the first time, reaching about US $102.365 billion in the week up to 10 October 2025.
- India's total foreign exchange reserves declined to ~US $697.784 billion in the same week.
- The share of gold in India's total reserves rose to 14.7%, the highest since 1996-97.
- Although the value hit the milestone largely due to surging global bullion prices (gold is up ~65% in 2025) and valuation gains, actual gold purchases by RBI slowed: only ~4 tonnes in Jan–Sept 2025 vs ~50 tonnes in the same period 2024.

Relevance for Exam:

- **Macro-economics / External sector**: The change in composition of reserves (higher gold share) shows how the RBI and India's external sector strategy adapt to global risk, de-dollarisation, geopolitical pressures.
- **Monetary policy / Reserve management**: For GS Paper 3, this illustrates central-bank behaviour, reserves diversification, asset valuation risk (e.g., mark-to-market gains from gold).
- **Global finance & commodities**: The gold rally is linked to global macro-drivers — safe-haven demand, inflation hedging, weakening dollar, central-bank buying. Good for analysis in Mains of global inter-linkages.
- **India-specific external vulnerabilities**: India being a major gold importer, high gold prices link to current-account/ CAD pressures, import bill, rupee depreciation.
- **Data/regulation insight**: Slow purchases despite rising value show a strategic shift — useful to discuss in context of Indian reserve management, policy prudence or opportunistic valuation.

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VOPPA 2025

The government of India has notified the Vegetable Oil Products, Production and Availability (Regulation) Order, 2025 (commonly "VOPPA 2025") — replacing the earlier 2011 order.

- **Nodal Ministry/Authority:** The Department of Food & Public Distribution (under the Ministry of Consumer Affairs) is the implementing body for edible oils regulation.
- **Effective Date & Registration:** Entities in the edible oil supply chain (manufacturers, processors, blenders, re-packers) must register on the National Single Window System (NSWS) portal and begin submitting periodic data via the edible oil portal (edibleoilindia.in).

- **Reporting & Compliance:** Monthly returns of production, stock and availability must be filed. Non-compliance may lead to penal action under the order and under the Collection of Statistics Act, 2008.
- **Inspections & Enforcement:** The department plans nationwide field inspection drives and verification of non-compliant units to ensure data integrity and supply-chain transparency.

Relevance

- **Food security & availability**: Edible oils are a staple in Indian diets; ensuring consistent supply, transparent stocks and production data is critical for national food security.
- **Regulation & governance in agri-value chains**: The move illustrates how the government is strengthening regulatory oversight of agri-industrial value chains .
- **Data-driven policy making**: Requiring real-time/regular data from units via digital portals shows a shift towards evidence-based policy and monitoring.
- **Supply-chain vulnerability & import dependence**: India is heavily dependent on edible oil imports; better domestic production tracking helps manage vulnerabilities and price volatility.
- **Implementation & enforcement challenges**: For mains answers, one can discuss how registration, reporting, inspections interplay with compliance culture, capacity of units (especially small/medium) and regulatory bottlenecks.

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"Fare Se Fursat" fixed airfare scheme by Alliance Air

Civil Aviation Minister introduces Alliance Air's "Fare Se Fursat" Fixed Airfare Scheme.

Nodal Organisations:

- Ministry of Civil Aviation, Government of India.
- Alliance Air (government-owned regional carrier.

Key Features of the Scheme

- Under "Fare Se Fursat", Alliance Air will offer a single, fixed fare for selected routes, irrespective of booking date or time of departure.
- The scheme will run as a pilot from 13 October to 31 December 2025 on selected routes.
- The objective is to reduce stress and uncertainty of fluctuating airfares and encourage flying from smaller towns/cities.
- The scheme is aligned with the broader vision of the UDAN (RCS) (Regional Connectivity Scheme) and the idea of democratising aviation for "Aam Nagrik".

Relevance

- **Inclusive connectivity & transport policy**: The scheme illustrates how the government is trying to promote air travel accessibility beyond metros and Tier-1 cities.
- **Public policy & regulation in aviation**: Fixed-fare experiment indicates policy intervention in a largely market-driven sector (dynamic pricing) — useful for discussing state role vs market in services.
- **Implementation challenges & pilot scheme**: Good case for analysing pilot programmes, monitoring, scalability, route viability, cost vs subsidy, and how regional connectivity schemes link with larger development goals.

- **Linkage to UDAN & regional development**: Strengthens connectivity of Tier-2/3 towns, enabling economic upliftment, tourism, business.
- **Mains essay fodder**: Could be used in essays with themes like "Transport as catalyst for development", "Bridging urban-rural divide", or "Making aviation accessible and affordable in India".

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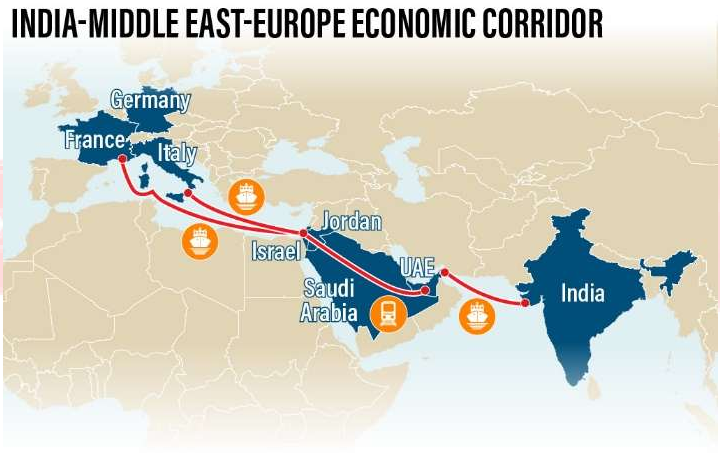
India–Middle East–Europe Economic Corridor (IMEC)

The war in Gaza and political-instability in West Asia have caused **significant delays** in the implementation of IMEC- linking India to Europe via the Middle East.

At the same time, global commentary highlights that while IMEC has great promise (trade, supply-chain diversification) it faces major hurdles: financing, coordination across countries, regulatory/technical harmonisation, regional geopolitics.

India–Middle East–Europe Economic Corridor (IMEC)



About IMEC

- IMEC is a proposed trans-continental economic and connectivity corridor linking India, the Middle East (Gulf region) and Europe through a network of ports, shipping routes, rail-links, energy pipelines and digital infrastructure.
- It was announced via a Memorandum of Understanding (MoU) at the G20 Summit 2023 in New Delhi on 9 September 2023. Signatories include India, the United States, the United Arab Emirates (UAE), Saudi Arabia, France, Germany, Italy and the European Union.
- The corridor is envisioned to have two main legs:
  - **An Eastern Corridor:** from India to the Gulf via maritime routes.
  - **A Northern Corridor:** from the Gulf through Middle East (e.g., Saudi Arabia, Jordan, Israel) to Europe via rail/road and maritime links.

Importance

- **Trade & Logistics Efficiency**: It promises shorter transit times and lower costs for goods moving between India and Europe. For example, one study estimates transit time could be reduced by ~40 % compared to traditional sea-routes.

- **Supply Chain Resilience**: One aim is to diversify trade routes away from chokepoints such as the Suez Canal and the Red Sea, which are vulnerable to disruptions
- **Strategic and Geopolitical Vision**: The corridor aligns with India's Act East/West connectivity ambitions, Gulf states' aim to become global hubs, and Europe's objective of diversifying connectivity and reducing dependence on dominant players.
- **Energy & Digital Infrastructure**: Beyond trade in goods, IMEC includes infrastructure for green energy (e.g., hydrogen pipelines), electricity grids and ultra-high-speed data-cables linking the regions.

Key Features & Proposed Elements

- Major ports on India's west coast (e.g., in Gujarat/Maharashtra) to act as western anchors.
- Rail/road linkages across the Arabian Peninsula, Jordan and Israel, connecting Gulf ports to Eastern Mediterranean ports.
- Maritime leg onward to Europe via Greece, Italy or France.
- Logistics hubs, special economic zones, advanced manufacturing and data-centres along the corridor.
- Sustainability dimension: infrastructure designed to incorporate clean energy, efficient logistics and digital platforms.

Challenges / Roadblocks

- Geopolitical tensions: Conflicts in the Middle East, Israel-Arab relations, stability of transit countries impact feasibility.
- Financing & investment: Massive capital required, yet many commitments still unclear.
- Coordination among multiple countries, regulatory harmonization, route agreements, infrastructure build-out.
- Competition from other corridors (e.g., China's Belt and Road Initiative) and regional alternatives.

Relevance for India

- Positions India as a key node in a major global connectivity project, boosting export competitiveness.
- Supports India's strategic objective to deepen ties with Gulf states and Europe.
- Helps enhance trade diversification, logistics efficiency and integration into global value chains.
- Opens up opportunities in energy, digital-infrastructure and manufacturing.

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India–MERCOSUR Preferential Trade Agreement (PTA)

India and Brazil agreed to deepen their economic engagement by expanding the scope of the existing PTA under the MERCOSUR framework.

- **Bilateral Trade Target**: The two countries have set a new bilateral trade target of $20 billion by 2030, up from $12 billion in 2024.
- **Sectoral Focus**: The expanded PTA aims to cover a broader range of sectors, including automotive, information technology, renewables, clean energy, healthcare, aerospace, agriculture, semiconductors, and digital innovation.

- A proposed Brazil-India digital partnership is also under consideration, focusing on artificial intelligence, high-performance computing, and technology start-ups to support green growth and job creation.

MERCOSUR (Southern Common Market)

- **Full name**: Mercado Común del Sur (Southern Common Market).
- **Founded**: 1991, under the Treaty of Asunción.
- **Headquarters**: Montevideo, Uruguay.
- **Member countries**: Argentina, Brazil, Paraguay, Uruguay (founding members); Venezuela is a full member but suspended since 2016; Bolivia is in the process of accession.
- **Observer / dialogue partners**: India has been an observer and engaged in trade dialogues with MERCOSUR since 2004.

Objectives

- Promote free trade and fluid movement of goods, people, and currency among member countries.
- Coordinate macroeconomic and sectoral policies to reduce economic asymmetries.
- Strengthen regional integration and cooperation in South America.
- Negotiate trade agreements with external partners (like India, the EU).

Significance

- MERCOSUR is one of the largest economic blocs in South America, contributing to ~75% of South America's GDP.
- Acts as a platform for India to diversify trade, especially in agriculture, pharmaceuticals, IT, and renewable energy.

About India–MERCOSUR Preferential Trade Agreement (PTA)

Framework Agreement: Signed in 2003, established the basis for trade negotiations, PTA Signed: 2004, operational from 2009, aimed at reciprocal tariff concessions.

- **Countries Covered**: Argentina, Brazil, Paraguay, Uruguay (MERCOSUR members).

Key Features / Provisions

1. **Tariff Concessions**
   - Both parties provide fixed tariff concessions on a list of products.
   - The list is negotiated and updated periodically.
2. **Rules of Origin**
   - Determines which products qualify for preferential treatment.
   - Ensures that only goods produced in India or MERCOSUR countries get PTA benefits.
3. **Safeguard Measures**
   - Provides a mechanism to protect domestic industries if imports surge due to tariff concessions.
4. **Dispute Settlement Mechanism**
   - Establishes procedures to resolve trade disputes between India and MERCOSUR members.
5. **Annexes**
   - **Annex I & II**: Tariff concession lists for each party.
   - **Annex III**: Rules of origin.

- **Annex IV**: Safeguard measures.
- **Annex V**: Dispute settlement procedures.

Importance for India

- Diversifies India's trade partners and export markets.
- Strengthens economic diplomacy with South America.
- Opens avenues for investment and technology collaboration.
- Supports India's broader goal of regional integration and South-South cooperation.

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Updated Rangarajan Poverty Line in India (2022–23)

RBI's Department of Economic and Policy Research (DEPR) used the 2022–23 Household Consumption Expenditure Survey (HCES) to update poverty estimates for 20 major states.

Methodology

1. **Data Source**: HCES 2022–23, which tracks household expenditure on food and non-food items.
2. **Calculation of Poverty Line**:
   - MPCE thresholds adjusted for inflation and cost of living variations across states.
   - Rural and urban poverty lines set separately.
3. **Consumption Basket**: Includes calories, clothing, education, health, housing, transport, and miscellaneous expenditures.
4. **State-wise Adjustment**: Poverty line calibrated to reflect state-specific cost structures, instead of using a single national line.

State-wise Highlights (2022–23)

State	Rural Poverty (%)	Urban Poverty (%)	Key Observation
Odisha	8.6	5.2	Largest rural decline from 47.8% in 2011–12
Bihar	14.3	9.1	Largest urban decline from 50.8% in 2011–12
Kerala	1.4	1.9	Lowest rural poverty in the country
Himachal Pradesh	2.0	2.0	Lowest urban poverty among surveyed states
Uttar Pradesh	17.0	12.5	Moderate decline, still high absolute numbers

General Trend:

- Significant decline in rural poverty across most states.
- Urban poverty also reduced sharply, reflecting improvements in wage employment, social schemes, and access to subsidized goods.

National-Level Insights

- **Overall Decline**: India's poverty ratio declined markedly since 2011–12, especially in the **eastern states** like Odisha and Bihar.
- **Consumption vs. Income**: Poverty measured through consumption tends to **capture short-term welfare better** than income measures.
- **Regional Disparities**: Southern states show very low rural poverty; northern and eastern states show higher levels but sharp declines recently.

Policy Implications

- **Targeted Schemes**: Updated poverty data helps design **better-targeted welfare programs**, e.g., PMGKAY, NFSA, MGNREGA.
- **Fiscal Allocation**: Helps in **state-specific allocation of resources** for poverty alleviation.
- **Monitoring SDGs**: Aligns with SDG 1 (No Poverty) monitoring and planning for India's poverty reduction goals by 2030.
- **Focus on Small & Marginal Farmers**: Since many poor households are agrarian, targeted support in inputs, credit, insurance, and MSP schemes is crucial.

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Ayushman Bharat: Private Sector Utilization and Associated Costs

Key Statistics

- **Total Treatments**: Over 9 crore instances of treatment have been accessed under the scheme since its inception.
- **Total Expenditure**: The total cost of these treatments amounts to ₹1.29 lakh crore.
- **Private Sector Share**:
    - **Hospitalizations**: 52% of the 9.19 crore hospitalizations occurred in private-sector hospitals.
    - **Expenditure**: Approximately 66% of the total treatment cost was incurred in the private sector.
- **Hospital Empanelment**: Out of 31,005 hospitals empanelled under the scheme, 45% are private-sector-run.

Common Treatments

- **Haemodialysis**: Accounts for nearly 14% of all treatments accessed under the scheme.
- **Other Common Treatments**:
    - Fever: 4%
    - Gastroenteritis: 3%
    - Animal Bites: 3%

Regional Insights

- **State-wise Trends**:
    - **Uttar Pradesh and Punjab**: Among the top states in terms of both the number of patients traveling out of the state for treatment and those coming in for treatment.
    - **Portability Feature**: The scheme's portability allows patients to seek treatment not only at their place of residence but also in any other state.

Extension of the 16th Finance Commission's Tenure

The Union Government has extended the tenure of the 16th Finance Commission (FC) by one month, moving its deadline from 31st October to 30th November 2025.

The 16th Finance Commission, headed by economist Arvind Panagariya, was constituted to make recommendations for the five-year period beginning April 1, 2026.

About the Finance Commission (FC):

- Constitutional Basis: Established under Article 280 of the Indian Constitution.
- Purpose: Formed every five years (or earlier if required) by the President of India to recommend the financial relations between the Centre and States.
- Submission: The Commission submits its report to the President, who then lays it before both Houses of Parliament.

Composition:

- Comprises a Chairperson and four Members, all appointed by the President of India.
- The Chairperson must have experience in public affairs.
- The four members are chosen based on their expertise in:
    - Judiciary (as a High Court Judge)
    - Government finance and accounts
    - Financial administration
    - Economics

Functions:

1. Recommend the distribution of tax revenues between the Union and the States, and among the States themselves.
2. Suggest the principles for grants-in-aid to states under Article 275.
3. Recommend measures to augment the resources of Panchayats and Municipalities.
4. Advise on any other financial matter referred to it by the President.

Tenure:

Members hold office for the period specified by the President and may be reappointed.

In essence, the extension provides the 16th Finance Commission more time to finalize its recommendations for a balanced and equitable fiscal distribution framework between the Centre and States from FY 2026–31.

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"India's Blue Economy: Strategy for Harnessing Deep-Sea and Offshore Fisheries"

Report Titled "India's Blue Economy: Strategy for Harnessing Deep-Sea and Offshore Fisheries" released by NITI Aayog (Agriculture Technology Division)

- **Sectoral Focus**: Deep-sea and offshore fisheries in India's Exclusive Economic Zone (EEZ).

Relevance for India

- India is the second-largest fish-producing country, accounting for ~8 % of global production.
- The fisheries sector supports nearly 30 million livelihoods and contributed approximately ₹60,523 crore in exports in FY 2023-24.
- India has a coastline of ~11,098 km across 9 coastal states + 4 UTs, and an Exclusive Economic Zone (EEZ) of over 2 million km^2, which holds an estimated deep-sea yield potential of 7.16 million tonnes (conventional + non-conventional) beyond the continental shelf.
- Strategic shift: from coastal fishing to tapping deep-sea/offshore resources for exports, employment, reducing pressure on coastal fisheries, and enhancing ecological sustainability

Key Policy Interventions & Features

The report outlines six major interventions:

1. **Policy & Regulatory Overhaul** – Updating laws/regulations for deep-sea/offshore fisheries.
2. **Institutional Capacity Building** – Strengthening agencies, research bodies, fleet monitoring.
3. **Modernisation of Fleet & Infrastructure** – Upgrading vessels, deep-sea trawlers, ports, cold chain.
4. **Sustainable Fisheries Management** – Science-based harvesting, ecosystem conservation, community participation.
5. **Resource Mobilisation & Financing** – Recognising deep-sea fishing is capital-intensive; promoting cooperatives, clusters, inclusive fleet ownership.
6. **Community Participation & Partnerships** – Engaging fisher cooperatives, clusters, state governments, and local communities for inclusive growth.

Roadmap & Phasing

- The report divides implementation into three phases:
  - **Phase I (2025–28):** Laying foundation, early growth.
  - **Phase II (2029–32):** Scaling up, achieving global competitiveness.
  - **Phase III (2033 onwards):** India as global leader in sustainable deep-sea fisheries.
- Indicative cost framework provided, linked with convergence of central schemes (centrally sponsored + central sector) related to fisheries

India's Strategic Implications

- Advances the vision of "Blue Economy" for India: maritime resources, ports, fisheries, innovation.
- Helps diversify exports and value-addition in seafood.
- Employment generation in coastal & offshore zones; livelihood uplift for fishing communities.
- Reduces pressure on coastal fishing zones, ensures sustainability of marine ecosystems.
- Strengthens India's maritime domain, utilisation of EEZ and deep-sea resources in line with maritime strategy.

Challenges & Considerations

- Deep-sea fishing is capital-intensive and technologically demanding; financial inclusion and fleet modernisation are critical.
- Sustainability concerns: need science-based harvesting to prevent over-exploitation of deep-sea ecosystems.
- Infrastructure gap: cold chain, processing, ports, monitoring, legality and governance.
- Inclusive growth: ensuring small & marginal fisherfolk are not left behind, cooperatives/clusters must be supported.
- Regulatory and institutional coordination across states, central agencies, maritime states, research institutions.

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Vital Statistics Report 2023

The Registrar General of India (RGI) released the "Vital Statistics of India based on Civil Registration System (CRS)" 2023 report.

It records a decline in registered births and a marginal increase in registered deaths, indicating demographic transition trends.

Key Findings of the 2023 Report

Parameter	Findings
Birth Registration	2.52 crore births in 2023 — about 2.32 lakh fewer than in 2022.
Death Registration	86.6 lakh deaths in 2023 — slightly up from 86.5 lakh in 2022.
COVID-19 Spike	2021 saw a spike — 1.02 crore deaths, around 21 lakh excess deaths over 2020, coinciding with the second wave.
Sex Ratio at Birth (SRB)	Nationally stable, but state disparities persist. → Lowest: Jharkhand (899), Bihar (900), Telangana (906), Maharashtra (909), Gujarat (910), Haryana (911). → Highest: Arunachal Pradesh (1085), Nagaland (1007), Goa (973), Ladakh (972), Tripura (972), Kerala (967).
Institutional Births	74.7% of births in health institutions, showing improved access to maternal care.
Birth Registration Coverage	98.4% coverage nationwide.
Timely Registration	Births registered within 21 days considered timely — rising steadily.

Reasons for Skewed Sex Ratio

1. **Cultural & Patriarchal Bias:** Preference for male heirs persists; females undervalued socially and economically.
2. **Economic Factors:** Dowry and social customs make daughters appear as financial liabilities.
3. **Son Preference:** Sons perceived as future earners and caretakers.
4. **Rising Income Paradox:** Access to prenatal sex determination technologies among affluent sections worsens the ratio despite higher literacy**.**

Legal & Institutional Framework

Mechanism	Details
Registrar General of India (RGI)	Established in 1961, under Ministry of Home Affairs. Conducts Census, CRS, Linguistic Survey of India.
Civil Registration System (CRS)	Continuous, permanent, compulsory registration of births, deaths, stillbirths.
Statutory Basis	Governed by Registration of Births and Deaths (RBD) Act, 1969.
Digital Reforms	Govt plans to revamp CRS for real-time registration, location-independent, and minimal human interface.
Sex-Selective Regulation	PCPNDT Act, 1994 bans prenatal sex determination. Ultrasound inclusion under Drugs & Cosmetics Act strengthens monitoring.

Measures to Improve Sex Ratio

1. **Behavioural Change Campaigns:**
   - Expand Beti Bachao Beti Padhao (BBBP) for awareness and gender parity.
   - Promote value of girl child through mass media and local governance.
2. **Youth & Community Engagement:**
   - Use ASHA workers, SHGs, and Panchayats for awareness drives.
   - Integrate gender equality modules in school curricula.
3. **Strict Law Enforcement:**
   - Strengthen implementation of PCPNDT Act.
   - Monitor ultrasound machine usage through national registry.
4. **Data & Digital Integration:**
   - CRS-linked Aadhaar birth registration.
   - Periodic audits for timely registration and gender data accuracy.

Significance of the Report

- Vital for population estimates, health policy planning, resource allocation, and tracking SDGs 3 & 5 (health and gender equality).
- Helps evaluate success of maternal and child health programmes (e.g., Janani Suraksha Yojana, Poshan Abhiyaan).
- Strengthens India's demographic data integrity for census and welfare schemes.

World Food Day 2025: 80 Years of FAO & India's Agrifood Transformation

Context- World Food Day, observed annually on 16 October, is a global occasion dedicated to raising awareness about food security, nutrition, and sustainable agricultural practices. It serves as a reminder of the ongoing challenges in ensuring that every person has access to safe, sufficient, and nutritious food. Food is the foundation of life, vital for health, growth, and well-being, and despite global advances in food production, millions still face hunger and malnutrition, highlighting the need for effective policies, resilient food systems, and collaborative action.

- **Date:** 16 October 2025
- **Occasion:** World Food Day + 80th Anniversary of FAO
- **Theme:** "Hand in Hand for Better Food and a Better Future"

Key Highlights of the Event

- **India–FAO Partnership:** 8-decade collaboration shaping India's journey from food-deficit to food-surplus nation.
- **FAO Coffee-Table Book:** Sowing Hope, Harvesting Success released to mark 80 years of FAO in India.
- **Speakers:**
  - Mr Shombi Sharp (UN Resident Coordinator in India) – praised India's rise as a global agri-leader.
  - Mr Takayuki Hagiwara (FAO Representative) – reaffirmed FAO's support for Viksit Bharat 2047.
  - Prof R. B. Singh – recalled FAO's role in research & capacity-building.

India's Agricultural Journey

- From food-shortages post-Independence → self-sufficiency & export surplus.
- Feeds 1.4 billion people while holding < 4 % of global arable land & freshwater.
- Driven by:
  - Green Revolution & policy support (MSP, public stockholding).
  - Scientific innovation + international collaboration with FAO.
  - Rights-based approach under the **National Food Security Act (2013)** — 800 million beneficiaries.

Focus on Sustainability & Nutrition

Dr Chaturvedi emphasized:

- Transition from "food security" to "nutrition security".
- Nutrition-sensitive agriculture → diverse, safe, affordable diets.
- Climate-smart initiatives: micro-irrigation, natural & organic farming, AgriStack (digital infra).
- Small & marginal farmers (146 million holdings) = backbone of rural economy.

Major Schemes & Reforms Highlighted

Area	Scheme / Mission	Key Points
Production & Nutrition	**National Food Security & Nutrition Mission (NFSNM)** — revamped NFSM	Focus on productivity + nutrition; soil fertility & employment.
Distribution	**National Food Security Act (NFSA) + PMGKAY**	81 crore beneficiaries; free foodgrains till 2028; ₹ 11.8 lakh crore outlay.
Child Nutrition & Education	**PM POSHAN Scheme** (Mid-Day Meal)	Hot cooked meals in Govt schools; links nutrition & attendance.
Micronutrient Security	**Rice Fortification Mission**	100 % fortified rice under all central schemes by Mar 2024; funded till Dec 2028.
Food Distribution Reforms	**SMART-PDS + ONORC**	Tech-driven PDS modernization, Aadhaar-linked ration cards, Mera Ration 2.0 app.
Market Stability	**Open Market Sales Scheme (OMSS-D)**	Bharat Atta & Bharat Rice at subsidized rates to curb inflation.
Pulse Self-Reliance	**Mission for Aatmanirbharta in Pulses (2025-31)**	₹ 11,440 crore budget; +35 lakh ha area; benefits 2 crore farmers.

India's Performance in Agriculture (2014 → 2025)

- **Foodgrain Output:** ↑ 90 MMT
- **Fruit & Vegetable Output:** ↑ 64 MMT
- **Milk & Millets:** Rank 1 globally
- **Fish, Fruits & Vegetables:** Rank 2 globally
- **Honey & Egg Production:** Doubled
- **Agri Exports:** Nearly doubled in 11 years

India's Global Leadership

- **World Food India 2025:** Showcased India as a Global Food Hub (90 countries, 2,000 exhibitors).
- **WWF Living Planet Report:** Indian Thali recognized for sustainability — if globally adopted, only 0.84 Earth needed by 2050.

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WTO Fisheries Subsidies Agreement: India's Stand for Sustainability and Equity

India is moving toward the ratification of the WTO Agreement on Fisheries Subsidies, reinforcing its position as a strong advocate of sustainable ocean use and protection of small-scale fishing communities. This step comes at a time when global efforts are intensifying to eliminate harmful subsidies that accelerate overfishing and threaten the health of marine ecosystems.

What is the WTO Agreement on Fisheries Subsidies?

This agreement is a landmark in international trade, being the first WTO pact dedicated to ocean governance and marine sustainability.

- **Adopted**: At the 12th WTO Ministerial Conference in Geneva (2022), as part of the Geneva Package.
- **Came into Force**: September 2025, once two-thirds of WTO members completed ratification.
- **Nature**: A legally binding framework that promotes both fair competition in fisheries trade and the long-term conservation of ocean resources.

Core Objectives

1. **Prevent Overfishing and Overcapacity** – Remove subsidies that encourage unsustainable exploitation of fish stocks.
2. **Protect Marine Life** – Ensure biodiversity and ecosystem balance.
3. **Secure Livelihoods** – Support communities relying on fishing for nutrition and income.
4. **Promote Fair Trade** – Restrict subsidies that distort competition in global markets.

Key Provisions of the Agreement

- **Ban on Harmful Subsidies**
  - No subsidies for illegal, unreported, and unregulated (IUU) fishing.
  - No support for harvesting from overfished stocks.
  - Restrictions on subsidizing fishing in unregulated high seas.
- **Transparency and Reporting**
  - Mandatory disclosure by member states on the nature of subsidies and fishing practices.
- **Assistance to Developing Countries**
  - Creation of a **WTO Fish Fund** to extend financial and technical help to developing countries and Least Developed Countries (LDCs).
- **Committee on Fisheries Subsidies**
  - Regular review, information sharing, and technical support for compliance.

India's Position on the Agreement

India emphasizes that sustainability goals must go hand in hand with equity and livelihood security.

1. **Protection for Small Fishers**
   - Demands a 25-year transition period for developing nations, much longer than the 5–7 years proposed by developed members.
2. **Per Fisher Basis for Subsidy Measurement**
   - Advocates calculating subsidies per individual fisher, not at the aggregate national level.
   - **Contrast:** Developed countries provide subsidies of nearly USD 76,000 per fisher, while India's figure is only about USD 35 per fisher.
3. **Accountability for Major Historical Subsidisers**
   - Calls for tougher obligations on countries that historically contributed to overfishing through large subsidies.
4. **Balance Between Rules and Sustainability**
   - Supports strict curbs on destructive fishing, but insists developing nations making efforts toward sustainability should not face unfair restrictions.

India's Key Initiatives for Sustainable Fisheries

India has undertaken several reforms and schemes to modernize the fisheries sector while ensuring sustainability:

- **Blue Revolution (2015-16)**
  Expanded aquaculture and marine fisheries to boost productivity and food security.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY, 2020)**
  Aims to transform the fisheries sector by increasing production, generating employment, and adopting sustainable practices.
- **Fisheries and Aquaculture Infrastructure Development Fund (FIDF, 2018-19)**
  Provides concessional finance for modernizing fisheries infrastructure.
- **National Policy on Marine Fisheries (2017)**
  Ensures scientific management of marine resources and protection of fish stocks.
- **Marine Fishing Regulation Acts (MFRAs)**
  State-level laws (e.g., in Kerala, Maharashtra) that regulate fishing within India's Exclusive Economic Zone, including seasonal bans and curbs on destructive gear.
- **ICAR–Central Institute of Fisheries Education (CIFE)**
  Focused on research, training, and education in sustainable aquaculture.

Conclusion

The WTO Agreement on Fisheries Subsidies is a turning point in international efforts to manage ocean resources responsibly. By balancing environmental goals with the rights of small fishers, India presents itself as a responsible voice for equity and sustainability. With domestic initiatives like PMMSY and strong advocacy at the WTO, India is working to ensure that fisheries remain both economically viable and environmentally sustainable for the future.

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Qatar Joins UPI Network: A Leap in Digital Payments

In a landmark development for India's digital payment ecosystem, Qatar has become the eighth country to adopt the Unified Payments Interface (UPI). This move reflects India's growing role in shaping global fintech and offers new convenience to Indian travellers and residents in Qatar.

What is UPI?

The Unified Payments Interface (UPI), developed by the National Payments Corporation of India (NPCI), is a real-time payment system that enables instant fund transfers via mobile phones. It has transformed digital transactions in India, making payments simple, secure, and fast.

Qatar's Adoption of UPI

- **Partnership**: NPCI International Payments Ltd (NIPL) has collaborated with Qatar National Bank **(QNB)** to roll out UPI-based transactions.
- **Launch**: Qatar Duty Free at Hamad International Airport became the first merchant to accept UPI payments.

- **Coverage**: Initially, the service is available at QNB-acquired merchants, with expansion planned across the country.

Benefits of UPI in Qatar

1. **Ease for Travellers** – Indian tourists and NRIs can now pay directly using familiar UPI apps (Google Pay, PhonePe, Paytm), reducing the need for cash or currency exchange.
2. **Faster Transactions** – Real-time transfers through QR codes make payments smooth and efficient.
3. **Financial Inclusion** – Strengthens India-Qatar economic engagement by linking fintech ecosystems.
4. **Boost to Bilateral Ties** – Enhances people-to-people connectivity and trade facilitation between the two nations.

India's Global UPI Expansion

Qatar joins a growing list of countries adopting UPI for cross-border payments, including:

- **Singapore** (PayNow-UPI link)
- **Bhutan**
- **Nepal**
- **UAE**
- **Mauritius**
- **Sri Lanka**
- **France**

With Qatar on board, UPI now reaches across West Asia, South Asia, Europe, and Africa, highlighting India's fintech diplomacy.

Significance of the Move

- Positions India as a global leader in digital payments infrastructure.
- Provides a model for cross-border financial integration.
- Encourages other countries to adopt UPI, strengthening India's role in the global fintech revolution.

Conclusion

Qatar's adoption of UPI marks a new milestone in India's digital journey. For millions of Indians traveling to or residing in Qatar, it means seamless payments and reduced financial barriers. More importantly, it underlines how India's homegrown innovation is steadily becoming a global standard in digital finance.

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Child Nutrition Report 2025

Key Themes & Rationale

- The report examines how "food environments" — i.e. the physical, marketing, regulatory, and economic surroundings influencing what children eat — are increasingly hostile to child nutrition.
- It shows that overweight and obesity are rising rapidly among children and adolescents, especially in low- and middle-income countries, even while undernutrition still persists.
- 2025 marks a historic shift: globally, obesity among ages 5–19 has overtaken underweight for the first time.

Major Findings

1. **Rising Overweight and Obesity**
   - Approximately 1 in 5 children aged 5–19 is now overweight globally.
   - The increase is fastest in low- and middle-income countries, which now account for > 80% of overweight children and adolescents globally.
   - Obesity is becoming a larger share of overall overweight cases.
2. **Nutritional Double Burden**
   - Many countries now face the burden of both undernutrition (stunting, wasting) and over-nutrition in the same population
   - Among children under 5, undernutrition (stunting, wasting) remains a concern, while overweight is not negligible.
3. **Unhealthy Dietary Patterns**
   - Diets of both young children (6–23 months) and adolescents lean heavily toward ultra-processed foods, sugary drinks, and snacks.
   - Many children do not consume sufficient fruits, vegetables, eggs, or flesh foods — the more nutritious items.
4. **Drivers: The Food Environment**

   The report identifies several systemic drivers pushing unhealthy diets:
   - **Accessibility and affordability** of ultra-processed items are high; healthier foods are often costlier or less available.
   - **Aggressive marketing**, especially digital marketing, targets children and adolescents with unhealthy food and drinks.
   - **Weak policy regulation**: many countries lack strong laws on marketing, labelling, taxation, and school-food regulations.
   - **Industry interference**: the influence of food and beverage corporations impedes or delays governmental interventions.

Implications & Risks

- **Health burden:** Overweight and obesity in children increases risk of noncommunicable diseases (diabetes, cardiovascular disease) later in life, along with psychosocial issues.
- **Undermines development goals:** Malnutrition (both under- and overnutrition) hampers cognitive development, schooling outcomes, and human capital.
- **Inequity:** Children in urban, wealthier, or more connected areas are more exposed to unhealthy food environments.
- **Policy gap:** Many nations are unprepared to regulate or transform food environments to protect children.

Policy Recommendations (UNICEF's Agenda)

The report puts forward eight priority actions for governments, civil society, industry, and multilateral actors. Key among them:

1. **Protect breastfeeding and appropriate complementary feeding**
   - Implement the International Code of Marketing of Breast-milk Substitutes and related WHA resolutions.

2. **Adopt mandatory legal measures to transform food environments**
    - Restrictions on marketing to children
    - Nutritional labelling (front-of-pack)
    - Taxes on sugary drinks or unhealthy foods
    - Reformulation of products to reduce harmful ingredients
    - Strong school food standards and controls
3. **Promote local nutritious food production and food systems**
    - Redirect subsidies, incentives, and agricultural policies toward nutrient-rich foods
    - Invest in infrastructure and supply chains for healthy foods especially in underserved areas
4. **Shield policy from industry interference**
    - Safeguard public health policymaking from commercial lobbying or influence
5. **Social and behavioral change programs**
    - Educate families, caregivers, and communities to demand healthier diets
    - Use behaviour-change strategies to shift preferences and practices
6. **Strengthen social protection and equity measures**
    - Cash transfers, food vouchers, or subsidies targeting poorer families, so children access nutritious diet
7. **Youth engagement in policy**
    - Involve children and adolescents in shaping food justice and health policy efforts
8. **Robust data & surveillance systems**
    - Improve monitoring of diets, food marketing, overweight and obesity, and food environments
    - Generate disaggregated data (by region, age, gender) to guide policies.

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Fiscal Health of Indian States: Insights from CAG's Decadal Analysis

- India's Comptroller and Auditor General (CAG) recently released a decadal review of States' fiscal health.
- Headlines highlighted Uttar Pradesh's ₹37,000 crore revenue surplus (more than double Gujarat's).
- However, focusing only on surpluses without analyzing the quality of expenditure, borrowing trends, and revenue sources presents an incomplete picture.

Why State Finances Matter

- Indian States collectively manage budgets larger than many countries.
- States spend more than the Union government on health, education, and welfare due to constitutional allocation of responsibilities.
- Fiscal health directly impacts everyday governance—availability of teachers, medical equipment, and infrastructure repair.

Revenue and Fiscal Imbalance

- **Early 2000s:** Most States were in deficit. Reforms, tax buoyancy, and growth improved balances by 2010s.

- **Pandemic shock:** Tax revenues shrank while welfare and emergency spending soared, worsening deficits.
- **Current picture:**
  - Some States appear fiscally stable.
  - But many rely on volatile income sources—lotteries (Kerala), mining royalties (Odisha), land sales (Telangana).
- **Vertical imbalance:** Richer States (Maharashtra, Gujarat) raise most of their resources internally; poorer States (U.P., Bihar, N.E. States) depend heavily on Union transfers.

Borrowing Trends (2016–2023)

CAG and RBI data reveal diverging debt strategies among States:

1. High Borrowing States

- **Andhra Pradesh:** Borrowings tripled to ₹1.86 lakh crore; debt ≈ 35% of GSDP.
- **Bihar:** Borrowings doubled; debt ≈ 39% of GSDP.
- **Rajasthan:** Quadrupled borrowings (₹43,889 cr → ₹1,60,565 cr); liabilities ≈ 40% of GSDP.
- **Punjab:** Chronic stress; debt ≈ 45% of GSDP.

2. Moderate but Persistent Borrowers

- **Haryana:** Nearly tripled borrowings; debt ≈ 31% of GSDP.
- **Madhya Pradesh:** Doubled borrowings; debt ≈ 29%.
- **Tamil Nadu:** Steady rise; debt ≈ 33%.
- **West Bengal:** Moderate borrowing, but liabilities remain high at 37%.

3. Conservative or Reducing Borrowers

- **Odisha:** Cut borrowings sharply; lowest debt ratio at ~15% (due to mining revenues).
- **Uttar Pradesh:** Slightly reduced borrowings; liabilities steady at 31%.
- **Tripura & Uttarakhand:** Reduced borrowings but still carry >30% debt ratios.

4. Pandemic Spike and Post-COVID Divergence

- **Spike everywhere in 2020-21**, but recovery strategies diverged:
  - **Cut borrowing:** Karnataka, Kerala, Maharashtra.
  - **Kept rising:** Andhra Pradesh, Rajasthan, Telangana.
  - **Further reduced:** Odisha, U.P., Tripura.

Fiscal Stress Indicators

- **Debt-to-GSDP Ratios:** Some small States like Himachal Pradesh, Nagaland, Mizoram carry extreme debt burdens (40–60%).
- **Revenue reliance:** Many States balance books through unsustainable or one-time sources (lotteries, land sales).
- **Hidden liabilities:** Free power schemes, farm loan waivers, and special purpose vehicles push costs off-budget.

The Welfare Paradox

- **Surpluses ≠ Fiscal Strength:** Some surpluses result from delayed transfers, off-budget borrowing, or under-spending on welfare.

- **Populism vs. Prudence:** Freebies and large welfare schemes often run on borrowed funds.
- **Centralisation:** Flagship schemes like **PM-KISAN, Ujjwala, Ayushman Bharat** dominate welfare spending, reflecting political branding rather than fiscal autonomy.
- **Structural Weakness:** India sustains one of the **largest welfare states globally** on a **thin fiscal base** with excessive dependence on borrowing.

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Government Extends RoDTEP Scheme till 2026 to Boost Export Competitiveness

The Government of India has extended the Remission of Duties and Taxes on Exported Products (RoDTEP) scheme till March 2026, providing much-needed relief to exporters amid rising U.S. tariffs and global trade uncertainties.

About the RoDTEP Scheme

- **Launch Year:** 2021
- **Objective:** To neutralize hidden taxes and levies that exporters incur during the production and distribution of goods, which are not reimbursed under existing tax mechanisms.
- **Coverage:** Applies to all export sectors, ensuring a level playing field and global competitiveness.
- **Refund Mechanism:** Provides rebates ranging from 0.3% to 3.9% on the Free-on-Board (FoB) value of exported goods.

Implementation Framework

- Fully **WTO-compliant** and aligned with international trade norms.
- Operates through a digitally integrated system ensuring end-to-end transparency, real-time tracking, and minimal human intervention.
- **Eligible Beneficiaries:**
    - **Domestic Tariff Area (DTA)** units
    - **Export-Oriented Units (EOUs)**
    - **Special Economic Zone (SEZ)** units
    - **Advance Authorization (AA)** holders

Fiscal Impact and Achievements

- By March 2025, disbursements under RoDTEP crossed ₹57,000 crore, reflecting its critical contribution to India's export performance.
- The scheme is implemented within defined budgetary limits, balancing export support with fiscal discipline.

Significance

- Strengthens India's export competitiveness by reducing embedded costs.
- Provides a stable policy environment to exporters during a period of volatile global trade.

- Promotes inclusive export growth, especially for MSMEs, SEZs, and manufacturing units.
- Reinforces the government's commitment to building a robust and resilient export ecosystem under Atmanirbhar Bharat.

The extension of RoDTEP till 2026 underscores India's resolve to sustain export momentum, support manufacturing competitiveness, and align trade incentives with global standards, ensuring that Indian exporters remain future-ready in an uncertain economic landscape.

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From Bumper Harvest to Strategic Storage

In 2024–25, India's fields yielded a record **353.96 million tonnes of foodgrains**, but the real test lies not just in production — it's in ensuring that this bounty reaches people without wastage. As India's agricultural backbone hums, the spotlight now shifts to storage — the silent, often overlooked link bridging farms and families.

Why Storage Matters: Preventing Loss, Stabilizing Lives

Efficient storage is the unsung hero behind food security. It helps:

- Minimize post-harvest losses
- Safeguard farmer incomes by preventing distress sales
- Stabilize consumer prices via buffer stocks
- Preserve grain quality by thwarting pests, moisture and spoilage

In short: without resilient infrastructure, even record outputs can slip through the cracks.

Three Storage Models under India's Microscope

1. **Centralized Storage (FCI & State Agencies)**

   Central procurement and stockholding fall under this domain. As of July 2025, there is space for storing 917.83 LMT across covered and CAP structures. These stores anchor key operations like the Public Distribution System and inter-state transfers.

2. **Cold Storage (for Perishables)**

   Fruits, vegetables, dairy, meat — all need controlled environments. India currently houses 8,815 cold storages with a combined capacity of 402.18 LMT. These facilities incorporate pre-cooling, packaging, blast freezing, and refrigerated logistics to preserve freshness.

3. **Decentralized Storage (PACS & Rural Hubs)**
   The frontline storage battalion — PACS and local godowns — keep grains close to the source. Over 5,900 PACS have joined recently, and 73,492 PACS are now computerized, upgrading efficiency at the grassroots.

Schemes That Power the Storage Revolution

- **Agriculture Infrastructure Fund (AIF):**
  Since 2020, this fund backs projects in storage, logistics, and value chains. Till September 2025, ₹73,155 crore was sanctioned for ~1.27 lakh projects.
- **Agricultural Marketing Infrastructure (AMI):**
  Through ISAM, rural storage gets a boost. By mid-2025, ~49,800 projects were sanctioned across 27 states, adding almost **982.94 LMT** in capacity.

- **Pradhan Mantri Kisan SAMPADA (PMKSY):**
  Anchoring food processing and cold chains, 1,601 projects approved; over 1,100 operational. The resultant capacity is ~255.66 LMT.
- **Cold Storage Subsidy Scheme:**
  To transform perishable storage landscape — subsidies of 35% (and 50% in certain regions) are given for building or upgrading storages in the 5,000–20,000 MT range
- **World's Largest Grain Storage Plan (Cooperative):**
  A visionary scheme for PACS-level infrastructure. Pilot phase has already built godowns in 11 PACS. Over 500 PACS are lined up for future construction.
- **Steel Silos & Asset Monetization:**
  Bulk mechanized storage is being scaled: 48 silos (27.75 LMT) are complete, 87 more underway, and projects on 54 sites in the pipeline. FCI's idle lands are being repurposed for new warehouses.
- **Storage & Godowns in NE Scheme:**
  Targeted at the North East, Himachal, Jharkhand, Kerala — funds allocated, projects in motion.
- **Private Entrepreneurs Guarantee (PEG):**
  Under PPP mode, the government guarantees to hire storage capacity, incentivizing private investment.

Bridging Harvest with Households

India's agricultural success is no longer measured merely by outputs, but by how effectively those outputs travel from farms to forks. As climate uncertainty and supply chain shocks loom, the push is on for resilient, decentralized, and tech-enabled storage infrastructure.

Building warehouses is not just about bricks and beams — it's about empowering farmers, protecting consumers, and reinforcing the thread of food security that binds the nation together.

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Electronics Component Manufacturing Scheme (ECMS)

The Ministry of Electronics and Information Technology (MeitY) has formally notified the Electronics Component Manufacturing Scheme (ECMS) — a major policy step to strengthen India's position in global electronics value chains by promoting domestic manufacturing of key components and subassemblies.

About the Scheme

Objective:

To develop a robust, self-sustaining ecosystem for electronic component manufacturing in India by attracting both domestic and global investments and integrating the Indian industry with Global Value Chains (GVCs).

Target Segments:

- **Sub-assemblies:** Display modules, camera modules
- **Bare Components:** Multi-layer printed circuit boards (PCBs)
- **Selected Advanced Components:** Flexible printed circuit boards and other complex inputs
- **Supply Chain Ecosystem:** Capital goods, machinery, and manufacturing inputs

Incentive Framework

Type of Incentive	Beneficiaries	Nature of Support	Duration
Turnover-linked	Sub-assemblies, bare components	Incentive on incremental sales	6 years + 1-year gestation
Capex-linked	Supply chain ecosystem, capital equipment	Incentive on eligible capital investment	5 years
Hybrid Incentive	Selected advanced components	Combination of turnover & capex incentives	Based on industry need

Eligibility:

Both greenfield and brownfield investments qualify under the scheme. Implementation: Managed by MeitY through a Project Management Agency (PMA).

India's Electronics Sector: Rising Potential

- The electronics industry is among India's fastest-growing sectors, witnessing a 5-fold rise in domestic production between FY2014–15 and FY2023–24.
- The industry's value now exceeds $150 billion, with a national goal of $500 billion in production by 2030.
- Exports of electronic goods touched $29.12 billion in FY24, growing at a >20% CAGR since 2014–15.
- Strategic initiatives such as India's first national security semiconductor fabrication plant, developed with India–US cooperation, will produce chips critical for defense and high-end hardware.

Why It Matters

1. **Economic Growth:** Electronics manufacturing can emerge as a key driver of India's $5 trillion economy vision.
2. **National Security:** Reducing import dependence limits data and cybersecurity vulnerabilities.
3. **Innovation Engine:** The sector fuels breakthroughs in 5G, IoT, AI, autonomous mobility, and medical technology.

Challenges in the Sector

- **High Production Costs:** Multiple tariff slabs and logistics costs make Indian products 4–5% costlier than Chinese counterparts.
- **Limited R&D Investment:** India spends <1% of GDP on R&D, far behind the U.S. and China (>2.5%).
- **Scale Barriers:** Local production is concentrated in low-complexity parts like casings and glass.
- **Dependence on Imports:** Heavy reliance on critical minerals exposes India to price shocks.
- **Weak Component Ecosystem:** High capital intensity discourages investment in base components.
- **Technological Gaps:** Lack of advanced manufacturing capabilities and skilled manpower remains a bottleneck.

Complementary Government Initiatives

The ECMS complements other flagship schemes under MeitY such as:

- Production Linked Incentive (PLI) for large-scale electronics manufacturing
- SPECS (Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors)

- Semicon India Programme for semiconductor and display fabrication

Way Forward: Building Global Competitiveness

Drawing from NITI Aayog's report on "Electronics: Powering India's Participation in GVCs", the roadmap includes:

Fiscal Interventions

- **Opex support** for scaling low-complexity components
- **Capex support** for high-complexity manufacturing
- **Hybrid funding** for advanced components like SMD-grade and multi-layer PCBs
- **Innovation scheme** for R&D centers and Indian SMEs
- **Cluster development** with worker housing, localized regulations, and dedicated governance models

Non-Fiscal Interventions

- Rationalize tariffs on input materials
- Attract global design and manufacturing talent with faster visa clearances
- Strengthen academia–industry linkages for advanced skill development
- Simplify technology transfer and approval processes

Conclusion

The Electronics Component Manufacturing Scheme (ECMS) represents a transformative leap in India's quest to become a global hub for electronics production. By aligning incentives with innovation and infrastructure, the scheme aims to turn India from a major electronics importer into a global exporter, driving both economic growth and strategic self-reliance.

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European Free Trade Association Trade and Economic Partnership Agreement (TEPA)

1. Overview and Background

- The India–EFTA Trade and Economic Partnership Agreement (TEPA) will come into force on 1 October 2025.
- It was signed on 10 March 2024 in New Delhi between India and the four EFTA nations — Switzerland, Norway, Iceland, and Liechtenstein.
- This is India's first Free Trade Agreement (FTA) that includes binding commitments on investment and employment generation.
- The agreement is described as modern, comprehensive, and development-oriented, comprising 14 chapters covering:
    - Trade in goods and services
    - Investment promotion
    - Rules of origin
    - Trade facilitation
    - Technical barriers to trade

- Sanitary and phytosanitary measures
- Intellectual property rights
- Sustainable development
- Trade remedies and legal provisions

2. Investment and Employment Commitments

- The EFTA countries have committed to mobilize USD 100 billion in foreign direct investment (FDI) into India over a 15-year period.
  - USD 50 billion in the first 10 years
  - An additional USD 50 billion in the subsequent 5 years
- These investments are focused on productive sectors, excluding foreign portfolio investments (FPI).
- The investment inflows are expected to generate 1 million direct jobs in India.
- The focus is on attracting high-quality, technology-intensive, and sustainable investment in sectors like renewable energy, life sciences, digital technology, and advanced manufacturing.

3. Market Access for Goods

EFTA's Commitments

- EFTA has granted 100% tariff elimination on non-agricultural goods.
- It has offered tariff concessions on several processed agricultural products.
- Around 92% of its tariff lines will be fully liberalized, covering nearly 99.6% of India's exports to EFTA markets.

India's Commitments

- India will liberalize about 82.7% of its tariff lines, which account for 95.3% of EFTA's exports.
- Around 80% of these imports are gold, but India will maintain its existing effective customs duty on gold imports.
- Sensitive sectors — such as pharmaceuticals, medical devices, dairy, processed food, soya, coal, and certain agricultural items — are excluded or partially protected.
- For sectors under domestic production schemes like PLI (Production-Linked Incentive) and Make in India, tariff reductions will be phased gradually over 5, 7, or 10 years.
- The agreement includes product-specific rules of origin and streamlined certification procedures to facilitate trade.

4. Services and Professional Mobility

- India has offered commitments across 105 subsectors of services.
- EFTA members have offered the following:
  - **Switzerland** – 128 subsectors
  - **Norway** – 114 subsectors
  - **Liechtenstein** – 107 subsectors
  - **Iceland** – 110 subsectors
- The TEPA covers trade through:
  - **Mode 1** – Cross-border digital delivery

- **Mode 3** – Commercial presence
- **Mode 4** – Temporary movement of professionals and key personnel

- The agreement facilitates greater predictability for work permits and short-term stays for professionals.
- It includes provisions for Mutual Recognition Agreements (MRAs) in fields like nursing, architecture, and chartered accountancy, improving employment prospects for Indian professionals.
- Indian service sectors like IT, business process management, education, audio-visual, and cultural industries are likely to benefit significantly.

5. Intellectual Property and Innovation

- The TEPA ensures IPR protection at TRIPS-compliant levels, maintaining balance between innovation and access.
- Switzerland's IP chapter reflects a high-standard framework, while India's interests in generic pharmaceuticals and anti-evergreening of patents are safeguarded.
- The agreement is expected to strengthen technology transfer, R&D partnerships, and innovation ecosystems.

6. Sustainability, Skills, and Development Focus

- TEPA emphasizes inclusive and sustainable growth, integrating environmental and social considerations into trade policy.
- It encourages cooperation in green technologies, renewable energy, skill development, and vocational training.
- The agreement aligns with India's national missions — Make in India, Skill India, and Atmanirbhar Bharat — to promote domestic value addition and employment.
- It aims to improve transparency, procedural simplification, and harmonization in trade and investment processes.

7. Sectoral Gains for India

Sector	Current Situation	Expected Benefits Under TEPA
Agriculture & Processed Foods	Limited exports to EFTA; majorly guar gum and niche items	Access for rice, pulses, fruits, nuts, confectionery, biscuits, sauces, and processed food products
Marine Products	Exports face moderate tariffs in Norway and Iceland	Tariff elimination on shrimps, prawns, squid, cuttlefish, and fish feed; enhanced competitiveness
Textiles & Apparel	Moderate presence in EFTA	Tariff concessions and easier market access
Leather & Footwear	Already duty-free	TEPA secures and formalizes these zero-duty conditions
Sports Goods & Toys	Small export volumes	Removal of tariffs and simplification of certification procedures
Engineering Goods	Growing exports (~USD 315 million in FY 2024–25)	Greater access for electrical machinery, aluminum, copper, and industrial equipment

Gems & Jewellery	Duty-free exports currently	Continuation of zero-duty access, expansion of product range
Electronics & Technology	Emerging export potential	Enhanced IP protection, technology collaboration, and market entry in EVs, sensors, and industrial electronics
Chemicals, Plastics, and Allied Products	Moderate exports, some facing high tariffs	Tariff reductions on over 95% of export lines; new opportunities in rubber, paper, and plastics

8. Institutional Mechanisms

- A dedicated India–EFTA Desk has been established as a single-window facilitation platform for EFTA investors.
- It assists in setting up operations in key areas such as renewables, life sciences, digital infrastructure, and engineering.
- The desk promotes joint ventures, SME partnerships, and technology collaborations, and acts as a liaison between governments and businesses.

9. Safeguards and Phased Implementation

- India has preserved policy space for sensitive sectors like dairy, coal, soya, and select agricultural commodities.
- Tariff reductions are structured over phased timelines (5–10 years) to ensure a smooth transition for domestic industries.
- The structure ensures stability, protection of vulnerable sectors, and support for emerging domestic manufacturing.

10. Strategic and Economic Significance

- TEPA is the first FTA between India and a group of four developed European economies.
- It links trade liberalization with investment and job creation, representing a new model for India's future trade pacts.
- It deepens India's integration with global value chains, promotes technology-intensive manufacturing, and attracts sustainable capital.
- The agreement signals India's commitment to high-standard, rule-based trade while maintaining strategic protection for key sectors.
- By combining trade, investment, innovation, and employment, TEPA aims to be a transformative agreement that enhances India's competitiveness and long-term growth.

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Paramparagat Krishi Vikas Yojana (PKVY): A Decade of Promoting Organic Farming (2015–2025)

1. Introduction

Launched in 2015, the Paramparagat Krishi Vikas Yojana (PKVY) marked a key step towards making Indian agriculture sustainable and eco-friendly. Implemented by the Ministry of Agriculture and Farmers Welfare under the National Mission for Sustainable Agriculture (NMSA), the scheme aims to encourage traditional organic practices that restore soil health and reduce dependence on chemical inputs.

2. Objectives

- Encourage farmers to adopt chemical-free, organic cultivation methods.
- Build cluster-based models of organic production for better market linkages.
- Enhance soil fertility, biodiversity, and ecological balance.
- Strengthen value chains to ensure higher income for farmers.
- Integrate traditional knowledge and local resources into modern farming.

3. Core Features

Aspect	Details
Cluster-Based Approach	Farmers are grouped into clusters of 20 hectares, enabling collective organic production.
Financial Support	₹50,000 per hectare for 3 years; most funds are used for inputs like compost, biofertilizers, and seeds.
Certification System	Uses the **Participatory Guarantee System (PGS-India)** for local, low-cost organic certification.
Training & Capacity Building	Farmers trained in composting, pest management, and post-harvest handling.
Market Integration	Promotes direct farmer-to-consumer sales and links with organic markets.

4. Achievements (2015–2025)

- **Land Coverage:** Over 8 lakh hectares brought under certified organic farming.
- **Farmer Reach:** Around 10 lakh farmers have benefited through training and certification.
- **Clusters Formed:** Nearly 45,000 organic clusters developed across states.
- **Leading States:** Madhya Pradesh, Rajasthan, Uttarakhand, Maharashtra, Sikkim, and Odisha.
- **Export Boost:** Growth in exports of organic products such as tea, spices, and pulses.
- **Soil & Environmental Gains:** Improvement in soil organic carbon, water retention, and biodiversity.

5. Key Success Stories

- **Sikkim:** Became the first fully organic state, setting a model for others.
- **Madhya Pradesh:** Largest contributor in area and number of certified organic clusters.
- **Women's Participation:** Active involvement of women self-help groups in composting and input preparation.

6. Challenges

1. **Limited Market Access:** Farmers often struggle to find steady markets for organic produce.
2. **Certification Limitations:** PGS-India certification not recognized internationally, restricting export potential.
3. **Initial Yield Drop:** Lower yields during the conversion period discourage new entrants.
4. **Awareness Gap:** Need for more field-level extension and farmer education.
5. **Inadequate Supply Chain:** Poor storage, logistics, and branding infrastructure for organic goods.

7. Government Measures & Policy Reforms

- **Integration with e-NAM:** Organic produce now tradeable on the electronic National Agriculture Market.
- **Support for Processing Units:** Incentives under PM Formalisation of Micro Food Processing Enterprises (PMFME).
- **Collaboration with ICAR & KVKs:** For training and innovation in organic inputs and pest control.
- **Proposed Expansion:** The Paramparagat Krishi Samridhi Mission aims to upscale PKVY for greater digital and value-chain integration.

8. Decadal Impact (2025 Review)

- **Economic Impact:** Organic farming helped small farmers diversify income and lower input costs.
- **Environmental Impact:** Noticeable decline in chemical residues in soil and groundwater.
- **Social Impact:** Enhanced community participation and revival of indigenous knowledge systems.
- **Institutional Impact:** Formation of thousands of farmer clusters and producer companies.

9. Way Forward

- Create a globally accepted certification framework alongside PGS.
- Strengthen branding and marketing networks for domestic and export markets.
- Provide transition incentives and crop insurance for organic farmers.
- Encourage research in bio-inputs and organic pest management.
- Align the program with India's climate resilience and carbon neutrality goals.

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India Mobile Congress (IMC) 2025 – Empowering Digital Transformation in India

1. Introduction

- **Organized by:** Department of Telecommunications (DoT) & Cellular Operators Association of India (COAI)
- **Theme: "Innovate to Transform"**
- **Significance:** Asia's largest telecom, media, and technology forum, highlighting India's journey from a mobile-driven economy to a digital technology powerhouse.

2. Key Highlights

a) India's Technological Growth

- India's telecom and digital sectors now symbolize the success of Atmanirbhar Bharat and Digital India.
- **Startups showcased innovations in:**
    - Quantum communication
    - 6G & optical communication
    - Semiconductors
    - Financial fraud prevention

b) Government's Role

- Focused on innovation, R&D, and indigenous technology development.
- Government initiatives include:
  - Telecom Technology Development Fund (TTDF)
  - Digital Communications Innovation Square — to fund startups.
  - Test Beds for 5G, 6G, optical and tera-hertz communication.
- Facilitated partnerships among startups, academia, and industry for product innovation and standard-setting.

c) Indigenous Achievements

- Launch of the Made-in-India 4G Stack, placing India among only five countries globally with this capability.
- Over 1 lakh 4G towers activated simultaneously, connecting 2 crore new users, especially in remote regions.
- India's indigenous telecom stack is export-ready and aligns with the India 6G Vision 2030.

3. India's Telecom Revolution – Achievements

Indicator	2014	2025 (Approx.)	Growth
Mobile Manufacturing Units	Limited	~300+ units	28x increase
Electronics Production	Baseline (2014)	6 times higher	6x
Mobile Exports	Nominal	127x higher	127x
Direct Jobs Created	-	Millions	Massive employment generation
Network Coverage	Limited 2G	Pan-India 5G in nearly all districts	Nationwide penetration

- Example: A leading smartphone company's local ecosystem now includes 45 Indian firms, employing 3.5 lakh people directly.
- India is now the second-largest telecom market and second-largest 5G market globally.

4. Policy and Legal Reforms

- **Telecommunications Act, 2023:**
  - Replaced the outdated Indian Telegraph Act (1885) and Wireless Telegraphy Act (1933).
  - Provides a modern, technology-neutral framework.
  - Focuses on facilitation rather than regulation.
  - Simplified approvals and Right-of-Way permissions, enabling faster fiber and tower rollout.
  - Enhances ease of doing business and long-term investment confidence.
- **Cybersecurity Measures:**
  - Stricter laws against cyber frauds.
  - Strengthened grievance redressal systems.
  - Accountability enhanced for telecom and digital service providers.

5. Global and Domestic Impact

a) Global Recognition

- India recognized as a trusted digital hub offering:
  - Scale in manpower and markets.
  - Skill in software and R&D.
  - Progressive policy ecosystem supporting innovation and investment.

b) Digital Transformation Metrics

- Cost of 1 GB Data: One of the lowest globally — even less than a cup of tea.
- India ranks among the top nations in per-user data consumption, showcasing widespread digital inclusion.

6. Role of Startups and Industry Collaboration

- Over 500 startups participated in IMC 2025, exploring partnerships, funding, and mentorship opportunities.
- **Emphasis on synergy between:**
  - **Startups** → Speed & innovation.
  - **Established Players** → Scale, stability, and R&D depth.
- **Joint collaboration expected in:**
  - Semiconductors & telecom manufacturing
  - Data centers & cloud infrastructure
  - AI, cybersecurity, and quantum computing

7. Strategic Focus Areas (2025 and Beyond)

1. **Next-Gen Connectivity:** 5G, 6G, optical and quantum communication networks.
2. **Semiconductor Manufacturing:** Work underway on 10 semiconductor fabrication units across India.
3. **Global Supply Chain Diversification:** India positioned as an alternative to concentrated production hubs.
4. **Data Sovereignty & Security:** Expanding data center ecosystems to make India a global data hub.
5. **Green & Secure Technology:** Emphasis on sustainable, energy-efficient, and secure tech development.

8. Significance for India's Future

- Strengthens Atmanirbhar Bharat in digital technology.
- Positions India as a global innovation and manufacturing hub.
- Drives progress towards Digital Economy & Viksit Bharat 2047 vision.
- Encourages youth-led innovation, skill development, and R&D culture.

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Electronics Component Manufacturing Scheme (ECMS)

Context

The Ministry of Electronics and Information Technology (MeitY) has introduced the Electronics Component Manufacturing Scheme (ECMS) to strengthen India's domestic electronics ecosystem and reduce dependence on imported components.

Nodal Ministry

- Ministry of Electronics and Information Technology (MeitY)

Aim and Purpose

- To create a robust and competitive component manufacturing base within the country.
- To attract both foreign and domestic investments across the electronics value chain.
- To promote integration of Indian manufacturers into global supply networks.

Main Highlights

1. **Focus Area:**
    - The scheme concentrates on manufacturing core electronic components such as:
        - Semiconductors
        - Passive and electromechanical parts (resistors, capacitors, connectors, switches)
        - Sensors, displays, and power electronics.
2. **Financial Incentives:**
    - Offers capital-linked and production-based incentives to reduce the cost disadvantage faced by Indian manufacturers.
    - Encourages scale, competitiveness, and quality enhancement.
3. **Alignment with Other Schemes:**
    - ECMS complements key initiatives like:
        - Production Linked Incentive (PLI) Scheme for large-scale electronics manufacturing.
        - Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS).
        - Modified Electronics Manufacturing Clusters (EMC 2.0).
4. **Investment Promotion:**
    - Designed to attract global firms and domestic startups, enabling technology transfer and R&D collaboration.
    - Provides facilitation through single-window clearance and project management agencies.
5. **Geographical Spread:**
    - Encourages states to develop Electronics Manufacturing Clusters (EMCs), particularly in hubs like Tamil Nadu, Karnataka, Uttar Pradesh, and Gujarat.

Implementation Framework

- The scheme is implemented by Project Management Agencies (PMAs) under MeitY.
- Projects are selected based on investment size, technological strength, and employment potential.
- The scheme operates over a multi-year period with performance-linked disbursements.

Expected Benefits

1. **Higher Domestic Value Addition:**
    - Aims to raise local value addition in electronics manufacturing from around 20% to 40% over the next few years.
2. **Employment Generation:**
    - Expected to create a large number of direct and indirect jobs in component manufacturing, logistics, and allied sectors.
3. **Reduced Import Dependence:**
    - Will minimize reliance on imported parts, especially from East Asian economies.
4. **Enhanced Export Competitiveness:**
    - Strengthens India's position as a global manufacturing and export base for electronic goods.
5. **Support for National Initiatives:**
    - Advances the goals of Atmanirbhar Bharat, Digital India, and Make in India.

Key Product Segments Covered

- Semiconductor devices and wafers
- Printed Circuit Boards (PCBs)
- Display modules and sensors
- Power electronics components
- Rechargeable battery modules
- Connectors, cables, and magnetics

Strategic Importance

- Electronics is among India's fastest-growing industrial sectors.
- Components make up nearly 60% of total product value, making domestic manufacturing crucial.
- Developing local capabilities ensures supply chain security, cost efficiency, and technological independence.

Recent Developments

- India's electronics production exceeded **USD 100 billion in FY 2024–25**, but component imports remain substantial (~65%).
- ECMS seeks to close this gap by **building a comprehensive and resilient domestic supply base.**

Comparison with Related Schemes

Scheme	Focus	Support Type
PLI Scheme	Finished electronics like mobiles & IT hardware	Output-based incentives
SPECS	Components and semiconductors	Capital subsidy
EMC 2.0	Infrastructure for clusters	Common facility support
ECMS	Core component ecosystem	Investment and production-linked incentives

Global Perspective

- The scheme aligns with the global "China + 1" diversification strategy, offering India as a stable alternative for electronics supply chains.
- It aims to position India as a trusted global hub for component manufacturing.

Challenges

- Shortage of highly skilled workers in semiconductor and component technologies.
- Need for affordable infrastructure and logistics support.
- High capital intensity of manufacturing and technology access constraints.

Way Forward

- Link ECMS with Design Linked Incentive (DLI) and R&D programs to encourage innovation.
- Strengthen testing, standards, and certification systems.
- Encourage MSME participation through cluster-based support and financing.
- Build international partnerships for advanced manufacturing technologies.

Summary

The Electronics Component Manufacturing Scheme (ECMS) is a strategic move by MeitY to build a self-sufficient component manufacturing ecosystem in India. By focusing on core electronic parts and encouraging both domestic and global investment, the scheme seeks to reduce imports, generate employment, and enhance India's global competitiveness in electronics. It represents a major step toward achieving the vision of Atmanirbhar Bharat and transforming India into a leading electronics manufacturing hub.

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Bharat Taxi – Cooperative Ride-Hailing Initiative

Context

India is set to launch Bharat Taxi, a cooperative-based national ride-hailing platform, in December 2025. The initiative is designed to provide a transparent, citizen-centric, and inclusive alternative to private cab aggregators like Ola and Uber.

Recently, the National e-Governance Division (NeGD) under the Digital India Corporation, Ministry of Electronics & Information Technology (MeitY), signed an MoU with Sahakar Taxi Cooperative Limited (the entity behind Bharat Taxi).

Pilot projects expected in Delhi and major metros, expanding to Tier-II and Tier-III cities.

Key Institutions Involved

- **Sahakar Taxi Cooperative Ltd.** – Promoter of Bharat Taxi.
- **Promoting Organisations:**
  - National Cooperative Development Corporation (NCDC)
  - IFFCO, AMUL, KRIBHCO, NAFED, NABARD, NDDB, and NCEL
- **Advisory Partner:** NeGD (Digital India Corporation, MeitY)

This marks a rare convergence of **the cooperative movement** and **digital governance expertise**.

Main Objectives of the Collaboration

1. **Platform Integration & Technical Architecture**
    - Integrate Bharat Taxi with national digital platforms such as DigiLocker, UMANG, and API Setu for identity verification, payments, and service delivery.
2. **Security, Compliance & Infrastructure**
    - Ensure the platform follows Government of India's data protection norms, cybersecurity protocols, and privacy standards.
3. **Programme Advisory**
    - Provide governance and management support using NeGD's experience in large-scale national platforms (like DigiLocker, eGov portals).
4. **UI/UX & Accessibility**
    - Design a multilingual, inclusive, and accessible interface, ensuring usability for all citizens, including those from rural or low-digital-literacy backgrounds.

Significance

Aspect	Impact
Digital Governance	Aligns with the Digital India Mission — integrating cooperatives into the digital public infrastructure ecosystem.
Driver Empowerment	Reduces dependence on private aggregators; drivers become co-owners, not contractors.
Transparency & Fair Pricing	Commission-free model with regulated fares, directly benefiting both drivers and passengers.
Data Sovereignty & Security	Platform developed under Indian jurisdiction — ensuring national control over mobility data.
Inclusive Access	Multilingual and accessible UI enables participation from all social and regional groups.

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INDIAN SOCIETY

Tribal Village Vision 2030

Context - The Ministry of Tribal Affairs (MoTA) has launched the Tribal Village Vision 2030 initiative as part of the Adi Karmayogi Abhiyan under the Adi Sewa Parv (2024–25).

- The initiative aims to make tribal communities equal partners in local development by enabling each tribal village to prepare its own Vision 2030 Declaration through Special Gram Sabhas.

Objectives

- To empower tribal communities to identify and plan their development priorities up to the year 2030.
- To promote community-led governance and ensure convergence of government schemes at the village level.
- To transform tribal villages from being mere recipients of welfare to co-creators of progress.
- To align local aspirations with Viksit Bharat @2047 and Sustainable Development Goals (SDGs).

Key Features

Feature	Description
Participatory Planning	Villagers use participatory tools such as transect walks (helps to identify local problems and resources directly on the ground instead of relying only on reports), social mapping, and focus group discussions to identify local needs in education, health, livelihood, and infrastructure.
Special Gram Sabhas	Over 1 lakh tribal villages and tolas hold Gram Sabhas to formally adopt their Vision 2030 Declarations.
Adi Sewa Kendras	To be established in each tribal village as single-window service centres for accessing government schemes and digital services.
Adi Sewa Samay	Encourages each villager to volunteer one hour per week for community service and collective development.
Capacity Building	Training of Adi Karmayogis — local youth, women, SHG members, and officials — to implement and monitor the vision. Map investments and actions under flagship programmes like Dharti Aaba Janjatiya Gram Utkarsh Abhiyan 2.0, PM JANMAN, and other central/state schemes
Use of Technology	Launch of 'Adi Vaani' mobile app, an AI-based multilingual platform for real-time communication in tribal languages. Currently equipped to translate four languages – Gondi, Bhili, Mundari and Santali in Hindi & English.

Expected Outcomes

- **Localized Development Agendas:** Every village will have a tailor-made plan addressing its specific socio-economic and cultural needs.
- **Enhanced Service Delivery:** Through Adi Sewa Kendras, access to welfare schemes, digital literacy, and grievance redressal will improve.
- **Women and Youth Empowerment:** Increased participation of SHG women and tribal youth in governance.

- **Cultural Preservation:** Development aligned with tribal values, ecological balance, and traditional knowledge systems.

Challenges

- Ensuring effective capacity building and sustained follow-up beyond the initial phase.
- Addressing diversity in languages, geography, and cultural practices across different tribal regions.
- Avoiding duplication or fragmentation of schemes across ministries.
- Developing a robust monitoring framework to track progress against declared goals.

Significance

- Strengthens grassroots democracy and participatory planning in tribal regions.
- Promotes the Atmanirbhar Bharat vision through local ownership of development.
- Integrates traditional wisdom with modern governance tools.
- Aligns with constitutional provisions under Article 244, Fifth and Sixth Schedules, and the PESA Act, 1996.

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Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)

Context

- Launched on 15 November 2023 (Janjatiya Gaurav Diwas).
- Implemented by the Ministry of Tribal Affairs (MoTA) in convergence with multiple other ministries.
- Focuses exclusively on Particularly Vulnerable Tribal Groups (PVTGs) — the most marginalized among Scheduled Tribes.

Objective

- To ensure socio-economic development and full inclusion of India's PVTG communities by providing them basic amenities, livelihood opportunities, and rights-based access to welfare schemes.
- To bring all PVTG households and habitations into the fold of national development by 2030.

Key Features

Parameter	Details
Target Group	75 PVTGs in 18 States and 1 UT (A&N Islands)
Duration	3 years – from 2023-24 to 2025-26
Total Outlay	₹24,104 crore (Central share: ₹15,336 crore; State share: ₹8,768 crore)
Implementing Mechanism	Multi-ministerial convergence model with 11 interventions across 9 ministries
Approach	Saturation Approach — every eligible PVTG household to receive all basic entitlements
Monitoring	A dedicated PM-JANMAN Dashboard tracks real-time progress

Major Components

1. **Housing:** Pucca houses for all PVTG households under PM-Awas Yojana.
2. **Water & Sanitation:** Functional tap water connections (Jal Jeevan Mission) and household toilets (Swachh Bharat Mission).
3. **Healthcare:** Mobile Medical Units, health sub-centres, vaccination drives.
4. **Education:** Hostels, residential schools, Anganwadi centres.
5. **Livelihood:** Support through NRLM, skill development, minor forest produce (MFP) value-addition.
6. **Connectivity:** Roads (PMGSY), electricity (including off-grid solar), telecom coverage.
7. **Nutrition:** Supplementary nutrition through POSHAN Abhiyan and ICDS.
8. **Financial Inclusion:** Bank accounts, Aadhaar, and Jan Dhan coverage.

Significance

- Recognizes historical isolation and multi-dimensional deprivation of PVTGs.
- Shifts focus from fragmented schemes to a comprehensive rights-based approach.
- Strengthens India's commitment to inclusive growth and SDG 2030 Agenda.
- Builds synergy between Centre, States, and Gram Sabhas for last-mile delivery.

Challenges

- Geographic isolation of PVTG hamlets (dense forests, hilly areas).
- Administrative coordination among multiple departments.
- Cultural sensitivity and need for community participation.
- Data accuracy in identifying genuine PVTG beneficiaries.

Probable Mains Question

"The PM-JANMAN programme represents a paradigm shift from welfare delivery to saturation-based inclusion for PVTGs. Critically analyse its design and challenges."

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Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DAJGUA 2.0)

Context

- Launched in 2024 under the banner of the Ministry of Tribal Affairs.
- Named after Birsa Munda, revered as Dharti Aaba ("Father of the Earth").
- Builds upon and expands the PM-JANMAN approach by covering all tribal villages, not just PVTG habitations.

Objective

- To empower tribal villages by saturating development and welfare schemes, improving governance, and ensuring access to essential public services.
- To transform tribal areas into self-reliant and vibrant Gram Panchayats through participatory planning and convergence of central/state schemes.

Key Features

Parameter	Details
Coverage	~63,000 tribal villages across 549 districts in India
Duration	2024–2026 (2-year campaign initially)
Approach	Mission-mode, saturation-based approach with massive outreach at village level
Ministries Involved	17 line ministries implementing 25 key interventions
Focus Areas	Connectivity, health, housing, education, livelihood, financial inclusion, and women empowerment
Community Involvement	Gram Sabhas, Adi Karmayogis, SHGs, and youth volunteers mobilized for awareness and implementation

Major Components

1. **Village Development Camps:** Conducted for awareness and on-the-spot delivery of government benefits.
2. **Convergence with PM-JANMAN:** Focus on PVTG villages within broader tribal areas.
3. **Skill Development:** Training of tribal youth for local entrepreneurship.
4. **Digital Inclusion:** Aadhaar enrolment, bank linkage, digital payments.
5. **Health & Nutrition Drives:** Immunisation, malnutrition screening, and telemedicine access.
6. **Education and Livelihood Support:** Scholarships, hostels, MFP-based entrepreneurship.
7. **Women Empowerment:** SHG formation and leadership roles in local planning.

Unique Features

- Establishes **"**Adi Sewa Kendras" — single-window digital service centres for tribal citizens.
- Promotes "Adi Sewa Samay" — one hour of voluntary community service every week.
- Encourages Vision 2030 Declarations for each tribal village through Gram Sabhas.

Significance

- Expands tribal development beyond PVTGs to the entire Scheduled Tribe population.
- Strengthens participatory governance and local leadership.
- Promotes convergence of schemes like PM-Awas, Jal Jeevan Mission, Ayushman Bharat, PMGSY, and PM-JANMAN.
- Enhances state capacity through mass awareness, capacity building, and digital platforms.

Challenges

- Synchronizing efforts among multiple ministries and states.
- Avoiding duplication with PM-JANMAN or existing tribal sub-plans.
- Sustaining outcomes once the campaign phase ends.
- Monitoring effectiveness in geographically scattered tribal regions.

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Viksit Bharat Buildathon 2025

About

- Viksit Bharat Buildathon 2025 is India's largest school hackathon, engaging over 1 crore students from Classes 6–12.
- Organised by the Department of School Education & Literacy (DoSEL), Ministry of Education, in collaboration with Atal Innovation Mission (AIM) and NITI Aayog.
- Aims to foster innovation, creativity, and problem-solving among school students to make them contributors to a developed and self-reliant India (Viksit Bharat by 2047).

Themes

1. **Atmanirbhar Bharat** – promoting self-reliance in products and technology.
2. **Swadeshi** – encouraging indigenous ideas and local innovation.
3. **Vocal for Local** – supporting local businesses and solutions.
4. **Samriddh Bharat** – building pathways for prosperity and inclusivity.

Key Highlights

- **Nationwide Synchronized Live Buildathon:**
  Held on October 13, 2025, across all schools via live streaming, marking a national celebration of innovation.
- **Awards & Recognition:**
  - Total Prize Pool: ₹1 crore.
  - 10 National-level winners, 100 State-level winners, and 1,000 District-level winners.
- **Dedicated Portal:** Registration and submission on the official site – vbb.mic.gov.in.
- **Mentorship Support:** Provided by Mentor of Change Network, Incubation Centres, Higher Education Institutions, and Corporates.
- **Inclusive Focus:** Special attention to Aspirational Districts, Tribal Areas, and Remote Villages to ensure equitable participation.

Timeline

Phase	Activity	Period
Launch	Buildathon officially launched	Sept 23, 2025
Registration	Student & school registration	Sept 23 – Oct 11, 2025
Preparation	Mentoring, brainstorming, team formation	Oct 11 – Oct 12, 2025
Live Buildathon	Nationwide innovation event	Oct 13, 2025
Submission	Entries uploaded to the portal	Oct 13 – Oct 31, 2025
Evaluation	Expert review of entries	Nov – Dec 2025
Felicitation	Announcement of winners	Jan 2026

Participation Process

- **Eligibility:** Students of Classes 6–12 from any recognized school.
- **Team Formation:** 3–5 members per team (no limit on teams per school).
- **Submission:** A 2–5 minute video explaining the problem, innovation, working model, and impact.

- **Themes:** Each team selects one of the four national themes.

Objectives and Significance

- Implements NEP 2020 vision – promoting experiential learning and design thinking.
- Encourages grassroots innovation and youth engagement in the Digital India and Atmanirbhar Bharat missions.
- Promotes inclusive education by ensuring participation from all socio-economic and geographical backgrounds.
- Strengthens India's innovation ecosystem by connecting schools with mentors, incubators, and industries.
- Contributes to the Viksit Bharat 2047 Vision, fostering a generation that innovates for sustainability, resilience, and economic growth.

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Six Pocket Syndrome

Context

A recent KBC (Kaun Banega Crorepati) episode featuring a confident, outspoken child contestant triggered a social media debate over "single-child behavior." Many labelled him as "spoiled" or "pampered," but psychologists pointed out that this reflected Six Pocket Syndrome, not the number of siblings.

What is Six Pocket Syndrome?

- **Definition:** A behavioral pattern in children who receive excessive attention, care, and indulgence from adults, leading to dependency and entitlement.
- The "six pockets" symbolize indulgence through —
    1. Food
    2. Toys
    3. Attention
    4. Praise
    5. Gadgets
    6. Affection
- Such children often get all their demands met without limits or consequences.

Key Psychological Insight

- The syndrome is not exclusive to only children.
- It arises from overprotection and overindulgence, not sibling absence.
- Misinterpretations: Assertiveness, curiosity, or confidence are often mistaken as arrogance or bad behavior.
- Healthy upbringing requires boundaries + empathy + independence.

Signs of Six Pocket Syndrome

- Dependency on adults for small tasks
- Difficulty sharing or compromising
- Tantrums over unmet desires

- Constant need for praise or validation

Result: Poor frustration tolerance and weak emotional resilience.

Parenting Guidelines to Prevent It

- Encourage small responsibilities and age-appropriate chores.
- Limit screen time and material indulgence.
- Promote peer interaction for empathy and teamwork.
- Praise effort over results to build intrinsic motivation.
- Let children face minor failures to foster resilience.
- Model balanced behavior and self-control as parents.

Takeaway

- Six Pocket Syndrome offers insight into modern parenting challenges amid smaller family sizes and rising affluence.
- Being an only child ≠ spoiled; the determining factor is parenting style, not sibling count.
- Balanced upbringing fosters independent, empathetic, and socially aware citizens — vital for a healthy society.

Mains Question

"The behavior of children reflects parenting more than family structure. Examine this statement in the context of the Six Pocket Syndrome debate." (150 words)

Generation Alpha: Challenges of the World's Youngest Cohort

Who Are They?

- Generation Alpha = children born between 2010 and 2025 — the first generation fully born into the digital era.
- They are the children of Millennials and will soon enter adolescence and early adulthood.
- By 2030, Gen Alpha will make up ~10% of the global workforce and will live in the most interconnected yet volatile world ever.

Key Challenges

1. Digital Overexposure & Screen Addiction

- Constant engagement with screens, social media, and AI devices affects attention span, empathy, and creativity.
- Early exposure to algorithm-driven content increases cyber-bullying, misinformation, and privacy risks.
- Rise of digital dopamine dependence—children struggle with boredom and offline play.

2. Mental-Health Pressures

- Higher levels of anxiety, loneliness, and comparison stress due to social-media validation culture.
- Pandemic-era isolation disrupted social development and coping skills.
- Growing need for mental-health literacy in schools and families.

3. Learning Inequalities & AI Disruption

- Unequal access to quality digital learning widens the education divide.

- Overreliance on AI tutors and instant answers may reduce critical-thinking and problem-solving abilities.
- Rapidly changing job landscape—skills of 2025 may be obsolete by 2035.

4. Climate Anxiety & Environmental Instability

- Witnessing extreme weather events and ecological degradation creates eco-anxiety.
- They will bear the brunt of climate change, resource scarcity, and migration stress.
- Need for education in climate resilience and sustainable lifestyles.

5. Economic & Employment Uncertainty

- Automation, AI, and gig-economy trends redefine "jobs".
- Gen Alpha will require **multiskilling, adaptability, and lifelong learning** to stay employable.
- Economic insecurity could deepen **youth inequality** between tech-savvy and marginalized groups.

6. Parenting & Socialization Gaps

- Rise of "device-based parenting" — parents outsourcing engagement to gadgets.
- Reduced outdoor play and community interaction affecting emotional intelligence and teamwork.
- Overprotective or indulgent upbringing (e.g., Six-Pocket Syndrome) may hinder resilience.

7. Health & Lifestyle Issues

- Sedentary lifestyles, processed food, and irregular sleep patterns → rise in obesity, myopia, and metabolic disorders.
- Digital environments reducing physical activity and real-world exploration.

Broader Societal Implications

- Changing family dynamics and peer communication patterns.
- Need for ethical technology regulation and digital literacy curriculums.
- Shifting civic consciousness — activism online vs real-world participation.

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ART AND CULTURE

Pandit Chhannulal Mishra

- Legendary Hindustani classical vocalist and exponent of the Banaras Gharana.
- Renowned for mastery in semi-classical forms: Thumri, Dadra, Chaiti, Kajri.
- Specialized in Purab Ang Thumri (eastern/slow, emotive style).
- Awards: Padma Bhushan (2010) and Padma Vibhushan (2020).
- Contribution: Preserved and popularized semi-classical music traditions, combining emotional depth with devotional elements.

Thumri

- A North Indian semi-classical music form, emerging in the 19th century under Nawab Wajid Ali Shah, celebrated for emotional expression (bhava) and storytelling.
- **Historical Shift:** After Awadh's fall (1856), Thumri's cultural center moved to Banaras, gaining spiritual devotion (mainly Radha-Krishna themes).
- **Distinct Feature:** Emphasizes emotion and improvisation, rather than rigid raga adherence.
- **Influences:** Draws from Hori, Kajri, Dadra, Jhoola, Chaiti, and other folk or semi-classical forms.

Forms of Thumri

Form	Tempo & Style	Gharana Association
Purbi Thumri	Slow, lyrical, emotional	Banaras Gharana
Punjabi Thumri	Fast, energetic	Patiala Gharana

Major Gharanas

- **Banaras Gharana**, **Lucknow Gharana**, **Patiala Gharana**

Hindustani Classical Music

- **Region:** North India (counterpart: Carnatic music in South India).
- **Core Features:** Largely vocal-centric, based on ragas and talas.
- **Classical Styles:** Dhrupad, Khayal.
- **Semi-Classical Styles:** Thumri, Dhamar, Tarana, Tappa, Qawwali, Ghazal.
- **Significance:** Provides a framework for emotional expression, spiritual experience, and cultural continuity in North Indian music.

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Thumri Music – Latest Update

The world of Hindustani classical music recently mourned the loss of Pandit Chhannulal Mishra (1936–2025), a Padma Vibhushan recipient and one of the most celebrated exponents of the Purab Ang style of the Banaras Gharana. His passing marks the end of an era for Thumri, a genre deeply rooted in emotion and lyrical beauty.

About Thumri Music

Thumri is a semi-classical vocal genre of Hindustani music, often described as the "poetic heart of Indian classical music." Emerging in 18th-century Eastern Uttar Pradesh—notably Lucknow and Benares—it was developed under the patronage of Sadiq Ali Shah and flourished in the courts of the Nawabs.

Themes & Language:
Thumri compositions primarily explore the moods of love, longing, and devotion, especially tales of Radha and Krishna. The lyrics are commonly in Braj Bhasha, Awadhi, or Hindi, interwoven with traces of Urdu and Sanskrit, reflecting North India's cultural fusion.

Distinctive Features:
Unlike the more rigid classical forms, Thumri allows freedom of improvisation and focuses heavily on bhava (emotional expression) rather than strict raga structure. Its soulful nature and expressive nuances make it an essential bridge between classical and light classical traditions.

Association with Dance:
Thumri is closely linked to Kathak, where the dance form visually interprets the emotional subtleties of the song, enhancing its narrative appeal.

Influences & Variants:
It draws inspiration from folk and seasonal genres such as Hori, Kajri, Dadra, Jhoola, and Chaiti. There are two main types of Thumri:

- Purbi (Eastern) Thumri – Emotionally rich, slower in tempo, and associated with the Banaras Gharana.
- Punjabi Thumri – More vibrant and rhythmically dynamic, identified with the Patiala Gharana.

Prominent Gharanas & Exponents:

- Banaras Gharana – Girija Devi, Rasoolan Bai, Siddheshwari Devi, Chhannulal Mishra
- Lucknow Gharana – Begum Akhtar
- Patiala Gharana – Bade Ghulam Ali Khan, among others

Thumri thus stands as a timeless embodiment of emotive depth, musical grace, and cultural continuity within India's rich classical tradition.

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Virtual Museum of Stolen Cultural Objects

UNESCO recently launched the Virtual Museum of Stolen Cultural Objects at its MONDIACULT 2025 conference (World Conference on Cultural Policies and Sustainable Development).

About the Virtual Museum

- **Purpose:** Digital platform to reconnect communities with stolen cultural treasures
- **Aim:** Create the first virtual immersive reality museum of stolen cultural objects globally
- **Significance:**
  - Raises awareness about illicit trafficking of cultural property
  - Supports recovery of stolen objects
- **Support & Collaboration:**
  - Financially supported by the Kingdom of Saudi Arabia
  - Developed in collaboration with INTERPOL
- **Current Display:** Nearly 240 missing objects from 46 countries

Objects from India

- **Source:** Mahadev Temple, Pali, Chhattisgarh

1. **Nataraja Figure:** Shiva in his cosmic dance
2. **Brahma Figure:** Seated in lalitasana, three faces, four arms holding sacred emblems (rosary, Vedas)

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DEFENCE

Exercise KONKAN-25

Overview

- Bilateral naval exercise between the Indian Navy and the UK Royal Navy.
- **Location:** Off India's western coast.
- **Significance 2025:** Marks 20 years of naval cooperation since the first edition in 2004.
- **Unique Feature:** First edition involving both nations' Carrier Strike Groups – HMS Prince of Wales (UK) and INS Vikrant (India).

Exercise Phases

1. **Harbour Phase:**
    - Professional exchanges
    - Ship visits
    - Workshops and mutual learning sessions
2. **Sea Phase:**
    - Anti-air, anti-surface, and anti-submarine drills
    - Flying operations
    - Coordination between surface and aerial units

Strategic Objectives

- Reinforces India–UK Comprehensive Strategic Partnership under Vision 2035.
- Demonstrates commitment to a free, open, and secure Indo-Pacific.
- Enhances interoperability between navies.
- Consolidates maritime security cooperation.

Significance

- Strengthens bilateral strategic and defence ties.
- Provides practical experience in multi-domain naval operations.
- Supports India's blue-water naval ambitions and the UK's Indo-Pacific presence

Other India–UK Military Exercises

Domain	Exercise
Air Force	Exercise Cobra Warrior, Exercise Indradhanush
Army	AJEYA WARRIOR
Navy	Exercise KONKAN (annual since 2004)

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Exercise Austrahind

An Indian Army contingent of 120 personnel recently departed for Irwin Barracks, Perth, Australia, to participate in the 4th edition of Exercise AUSTRAHIND 2025.

About Exercise AUSTRAHIND

- **Type:** Annual joint military exercise between India and Australia

- **Indian Contingent:** Led by a Battalion of Gorkha Rifles along with troops from other arms and services
- **Objective:**
  - Enhance military cooperation
  - Improve interoperability between armies
  - Exchange tactics, techniques, and procedures in sub-conventional warfare in urban/semi-urban terrain
- **Focus Areas:**
  - Joint company-level operations in open and semi-desert terrain
  - Missions include joint planning, tactical drills, and special arms skills
  - Integration of emerging technologies and joint combat operations

Other India–Australia Military Exercises

- AUSINDEX – Naval exercise focusing on maritime cooperation
- PITCHBLACK – Air Force exercise focusing on aerial warfare and interoperability

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Exercise Samudra Shakti – 2025

The Indian Navy is conducting the fifth edition of Exercise Samudra Shakti – 2025 at Visakhapatnam, showcasing the growing maritime cooperation between India and Indonesia.

About Exercise Samudra Shakti

- **Nature:** A bilateral maritime exercise jointly held by the Indian and Indonesian Navies.
- **Objective:** To enhance interoperability, deepen mutual understanding, and exchange best operational practices between the two forces.
- **Significance:** The exercise underscores the shared vision of India and Indonesia in promoting peace, security, and stability across the Indo-Pacific region.

Indian Participation

- The Indian contingent features INS Kavaratti, an Anti-Submarine Warfare Corvette from the Eastern Fleet, operating under the Eastern Naval Command (ENC).

Exercise Phases

1. **Harbour Phase:**
   Focuses on professional interaction and camaraderie-building through:
   - Cross Deck Visits
   - Joint Yoga Sessions
   - Friendly Sports Events
   - Subject Matter Expert Exchanges (SMEE)
2. **Sea Phase:**
   Involves advanced maritime manoeuvres designed to boost tactical synergy, including:
   - Helicopter Operations
   - Air Defence and Gunnery Drills

- Weapon Firing Exercises
- Visit, Board, Search, and Seizure (VBSS) Operations

Other India–Indonesia Defence Engagements

- Army Exercise: Garuda Shakti
- Maritime Patrol Exercise: IND–INDO CORPAT

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Military Combat Parachute System (MCPS)

The Defence Research and Development Organisation (DRDO) has successfully tested the indigenously developed Military Combat Parachute System (MCPS) at an altitude of 32,000 feet, marking a major achievement in India's defence technology capability.

About Military Combat Parachute System

- **Developer:** The system has been designed and developed in India by DRDO's Aerial Delivery Research and Development Establishment (ADRDE), Agra, in collaboration with the Defence Bioengineering and Electromedical Laboratory (DEBEL), Bengaluru.
- **Indigenous Achievement:** It represents a fully indigenous innovation under DRDO's efforts to enhance self-reliance in defence technology.

Key Features

- Successfully demonstrated a combat freefall jump from 32,000 feet altitude.
- Currently, it is the only operational parachute system in India's defence arsenal that can be deployed above 25,000 feet.
- Designed with enhanced tactical capabilities, including:
  - Reduced rate of descent for improved control and safety.
  - Superior steering performance for precise navigation.
- Integrated with Navigation with Indian Constellation (NavIC) for accurate positioning and route guidance.

Significance

- Empowers paratroopers to exit aircraft safely, deploy at pre-decided altitudes, and land accurately in designated drop zones.
- Enhances strategic autonomy, as it is immune to foreign interference or signal denial.
- Marks a step forward in indigenous defence production, reducing India's dependence on imported systems—especially critical during conflict situations.
- Opens avenues for the large-scale induction of Indian-made parachute systems across the armed forces.

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Exercise Drone Kavach Latest News

The Spear Corps under Eastern Command of the Indian Army recently conducted Exercise 'Drone Kavach' in the forward areas of Eastern Arunachal Pradesh.

About Exercise Drone Kavach

- It was conducted by the Indian Army's Spear Corps, operating under the Eastern Command,
- The four-day exercise was conducted in the forward areas of Eastern Arunachal Pradesh.
- The exercise showcased the Army's combat readiness for the next generation of drone warfare, besides validating state-of-the-art drone technologies.
- It was also attended by personnel of the Indo-Tibetan Border Police (ITBP) deployed in forward areas.
- As part of it, a series of tactical manoeuvers and combat situations were exercised to validate the Army's preparedness for operating in a multi-domain, technology-infused battlefield scenario.
- Tactics, techniques, and procedures pertaining to target acquisition, active/passive counter-drone measures, and target neutralisation with assured success were rehearsed under simulated conditions.
- Newly raised structures at the unit level were also exercised for developing tactics, techniques, and procedures in consonance with the overall employment philosophy and mandated operational tasks.

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INS Sutlej

The Indian Navy's hydrographic survey ship INS Sutlej has recently docked at Port Louis, Mauritius, to carry out the 18th Joint Hydrographic Survey between India and Mauritius. This mission underscores India's commitment to strengthening maritime cooperation and capacity-building with its Indian Ocean partners.

About INS Sutlej

INS Sutlej is a specialized hydrographic survey vessel operated by the Indian Navy, designed to map and study the seafloor for navigational and strategic purposes.

- Builder & Commissioning: Constructed by Goa Shipyard Limited, the vessel was commissioned in 1993 and has since played a vital role in India's oceanographic and hydrographic missions.
- Base: It operates from Kochi, under the Southern Naval Command.

Technical Capabilities & Equipment

INS Sutlej is outfitted with state-of-the-art survey, navigation, and communication systems, enabling it to conduct precise and high-quality hydrographic surveys.

Key equipment includes:

- Multi-beam swath echo sounder for detailed seabed mapping.
- Differential Global Positioning System (DGPS) for high positional accuracy.
- Motion sensors, sea gravimeter, and magnetometer for oceanographic and geophysical measurements.
- Side-scan sonars to detect and classify underwater features.
- Oceanographic sensors and an automated data logging system to collect and process data efficiently.

These systems comply with international ISO 9002 digital survey accuracy standards, ensuring data reliability for the production of Electronic Navigation Charts (ENCs) and other hydrographic publications.

Additional Features

The ship also carries a Chetak helicopter for aerial reconnaissance and logistic support, along with four survey motorboats to aid in shallow-water and coastal mapping operations.

Through missions like the Mauritius survey, INS Sutlej continues to enhance regional maritime domain awareness, contributing to safe navigation and deepening India's "Security and Growth for All in the Region (SAGAR)" vision.

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Akshar Fast Patrol Vessel

The Indian Coast Guard Ship (ICGS) Akshar was recently commissioned at Karaikal, Puducherry, marking another step forward in India's efforts to strengthen coastal and maritime security. The vessel, designed and built by Goa Shipyard Limited (GSL), represents the growing success of India's indigenisation drive in the defence manufacturing sector.

About Akshar Fast Patrol Vessel (FPV)

- **Class:** Adamya-class Fast Patrol Vessel
- **Series:** Second in a series of eight FPVs built by Goa Shipyard Limited.
- **Meaning:** The name 'Akshar', meaning imperishable, symbolises the Indian Coast Guard's resolve, vigilance, and commitment to protecting India's maritime frontiers and maintaining clean seas.
- **Indigenisation:** The vessel has over 60% indigenous content, showcasing India's technological and industrial capabilities in shipbuilding.

Key Features and Technical Specifications

Parameter	Details
Displacement	~320 tons
Engines	Two diesel engines of 3,000 KW each
Maximum Speed	27 knots
Endurance	1,500 nautical miles at economical speed
Propulsion System	Two indigenously developed Controllable Pitch Propellers (CPP) and gearboxes
Bridge & Control Systems	Equipped with Integrated Bridge System (IBS), Integrated Platform Management System (IPMS), and Automated Power Management System (APMS) for advanced automation and seamless operation
Base Location	Karaikal, Puducherry
Command Structure	Under the Commander, Coast Guard Region (East)

Operational Role and Significance

The ICGS Akshar will play a critical role in:

- Maritime surveillance and interdiction in India's Exclusive Economic Zone (EEZ).
- Search and Rescue (SAR) missions during emergencies at sea.

- Pollution response and anti-smuggling operations.
- Ensuring coastal security in coordination with the Indian Navy and local authorities.

Strategic Importance

The commissioning of ICGS Akshar enhances India's blue-water capabilities and reflects the government's commitment to the "Aatmanirbhar Bharat" (Self-Reliant India) initiative in defence production. It also strengthens the Coast Guard's operational reach along the Eastern Seaboard, particularly in the Bay of Bengal region, which has seen increasing strategic activity and trade movement.

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INS Sahyadri

The Indian Navy's indigenous stealth frigate INS Sahyadri recently made a port call at Kemaman Port in Malaysia, strengthening naval diplomacy and demonstrating India's maritime capabilities in the region. Such visits promote strategic cooperation, joint exercises, and regional maritime security.

About INS Sahyadri

- **Class & Series:** Third ship of the Shivalik-class Guided Missile Stealth Frigates.
- **Builder:** Mazagon Dock Limited (MDL), Mumbai.
- **Commissioned:** 2012, fully indigenously designed and constructed.
- **Fleet Assignment:** Part of the Eastern Fleet, based in Visakhapatnam.

Key Features and Specifications

Parameter	Details
Displacement	6,800 tons
Speed	32 knots (surface)
Missile Systems	Barak-1, Shtil-1 3S90M, BrahMos anti-ship missiles
Other Weapons	Anti-submarine rocket launchers, versatile sensor arrays
Aviation Capability	Can carry multi-role helicopters for surveillance and ASW (anti-submarine warfare)
Stealth Features	Low radar signature, designed for reduced detectability in combat

Significance

- **Indigenous Capability:** Represents India's coming of age in warship construction, being one of the first stealth frigates built entirely in India.
- **Multi-Domain Combat:** Equipped to handle threats from air, surface, and sub-surface domains.
- **Strategic Diplomacy:** Port calls like Kemaman, Malaysia, enhance regional ties, interoperability, and naval diplomacy in the Indo-Pacific.

Shivalik-class Stealth Frigates

- **Ships in Class:** INS Shivalik, INS Sahyadri, INS Satpura
- **Key Features:** First stealth warships of India, combining stealth, speed, and advanced combat systems.

Role: Multi-role frigates capable of anti-air, anti-surface, and anti-submarine warfare, along with escort and surveillance duties.

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NOBEL PRIZE 2025

Physiology or Medicine

Winners

- Mary E. Brunkow
- Fred Ramsdell
- Shimon Sakaguchi

Awarded For

- Discoveries that transformed understanding of autoimmune regulation, specifically the role of regulatory T-cells (Tregs) and FOXP3 transcription factor.

1. Regulatory T-cells (Tregs)

- Tregs are a special type of T lymphocytes that act as the immune system's "brakes."
- **Function:** They prevent the immune system from attacking the body's own tissues, helping maintain immune tolerance and prevent autoimmune diseases.
- **Markers:** Typically express CD4, CD25, and FOXP3 on their surface.

2. FOXP3 – The Master Regulator

- FOXP3 stands for Forkhead box P3.
- It is a transcription factor, which means it is a protein that binds to DNA and controls the expression of specific genes.
- **Role in Tregs:**
    - FOXP3 is essential for the development and function of Tregs.
    - Without FOXP3, Tregs cannot form properly or perform their suppressive functions.
    - Mutations in FOXP3 in humans lead to IPEX syndrome (Immune dysregulation, Polyendocrinopathy, Enteropathy, X-linked), a severe autoimmune disorder.

3. How FOXP3 Works

- FOXP3 binds to regulatory regions of multiple genes that control Treg function.
- It **turns on genes** needed for suppressive activity and **turns off genes** that would make the Treg behave like a conventional T-cell.
- This ensures Tregs can:
    - Suppress effector T-cells.
    - Release inhibitory cytokines like IL-10 and TGF-β.
    - Prevent excessive immune responses and autoimmunity.
- **Tregs** = immune suppressors that maintain self-tolerance.
- **FOXP3** = master transcription factor that programs Tregs to be functional.
- Without FOXP3, Tregs fail → leads to autoimmune disorders.

1. What is transcription?

- Think of your DNA as a giant instruction book for your body.
- Transcription is like making a photocopy of one specific instruction from this book.
- This "photocopy" is called RNA, which can then be used to make a protein.

2. Transcription in FOXP3

- FOXP3 is a gene in your DNA that contains instructions to make the FOXP3 protein.
- Transcription of FOXP3 = the cell reads the FOXP3 gene and makes an RNA copy.
- This RNA copy is then translated into the FOXP3 protein, which acts as the boss for Tregs.

3. Simple analogy

- DNA = recipe book
- FOXP3 gene = the recipe for "peacekeeper instructions"
- Transcription = copying that recipe onto a piece of paper (RNA)
- Translation = cooking the dish (making the FOXP3 protein)

So basically: Transcription is the first step where the cell copies FOXP3 instructions to eventually make the FOXP3 protein, which controls Treg function.

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Chemistry 2025

Winners:

- **Susumu Kitagawa (Japan)**
- **Richard Robson (Australia)**
- **Omar Yaghi (USA)**

For: Creating a new kind of material called Metal–Organic Frameworks (MOFs).

What did they discover?

They created materials that behave like sponges at the atomic level — they can trap, store, or filter different gases and chemicals using tiny, well-structured holes inside them.

1. Richard Robson (Australia)

- He first showed that metal atoms can be connected with organic molecules to form strong, 3D crystal-like networks.
- These materials had lots of empty space inside — like a sponge with millions of microscopic holes.
- That idea became the foundation for creating porous materials that can "hold" gases or chemicals.

2. Susumu Kitagawa (Japan)

- He found that these structures could breathe — meaning they expand or shrink when exposed to certain gases.
- This made them perfect for uses like storing carbon dioxide or hydrogen, or capturing energy efficiently.

3. Omar Yaghi (USA)

- He gave these materials a name — Metal-Organic Frameworks (MOFs).
- He developed reticular chemistry, a method to design these frameworks in a systematic and predictable way.
- This allowed scientists to create custom-designed MOFs with specific properties for different purposes.

Why is this important? (Real-world uses)

Use	How MOFs help
Water harvesting	Pulls moisture from dry desert air to produce drinking water.
Carbon capture	Traps CO_2 from air or industrial gases to fight climate change.
Toxic gas storage	Stores or neutralizes harmful chemicals safely.
Custom chemistry	Can be tuned for specific reactions or for storing energy-rich gases like hydrogen.

In simple words

Imagine a sponge so tiny that it can trap individual molecules of gas — like carbon dioxide or water — and release them when needed.
That's what these scientists made.
They basically built "molecular Lego" — where metals and organic parts snap together to make strong, porous structures that can be customized for solving real-world problems.

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Literature 2025

Laureate:

László Krasznahorkai (Hungary)

Award Citation:

He has been honoured "for his compelling and visionary oeuvre that, amid apocalyptic terror, reaffirms the enduring power of art."

Who is László Krasznahorkai?

László Krasznahorkai is a Hungarian novelist and screenwriter, widely regarded as one of Europe's most profound contemporary literary voices. His works are known for their dense, intricate prose, and exploration of philosophical, dystopian, and existential themes.

Major Works:

- Satantango
- The Melancholy of Resistance
- War & War
- Seiobo There Below
- The Last Wolf
- The World Goes On

Themes and Style:

- Krasznahorkai's writing is often described as postmodern and apocalyptic, filled with long, unbroken sentences that mirror the chaos of human thought.
- His novels deal with moral disintegration, delusion, the collapse of civilisation, and the constant tension between despair and beauty.
- His celebrated novel The Melancholy of Resistance has been described as a "satirical and prophetic vision of Western civilisation."

Honours and Achievements:

- Man Booker International Prize (2015) – Winner

- Man Booker International Prize (2018) – Shortlisted for The World Goes On
- Recognised globally for his philosophical depth and literary innovation.

Indian Connection:

- Amitav Ghosh, one of India's most acclaimed contemporary writers and recipient of the Jnanpith Award, was among the contenders for the 2025 Nobel Prize in Literature.
- His works, such as The Shadow Lines, The Hungry Tide, and the Ibis Trilogy, explore themes of migration, climate change, and colonialism.

In Simple Words: László Krasznahorkai's novels are like slow, intense journeys into the human mind, revealing how art and imagination survive even when the world seems to fall apart.

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Physics 2025

Laureates

- John Clarke, Michel H. Devoret, and John M. Martinis

Discovery

- Awarded for the discovery of macroscopic quantum mechanical tunnelling and energy quantisation in an electric circuit.
- Their experiments demonstrated that even large-scale electrical circuits can display quantum behaviours such as tunnelling (particles passing through energy barriers) and discrete energy levels (quantised states).
- This proved that quantum physics applies not just to tiny atoms, but also to systems visible at the macroscopic level.

Significance

- Their research forms the foundation of quantum technologies—including quantum computing, quantum sensors, and quantum communication.
- It paved the way for the development of superconducting qubits, used in modern quantum computers.
- Marks a major milestone in bridging quantum theory and practical engineering.

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Economic Sciences 2025 — Innovation and Growth

Awarding Institution: The Royal Swedish Academy of Sciences
Official Title: The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2025
Total Prize Money: 11 million Swedish kronor (approx. ₹10.25 crore)

Laureates and Their Institutions

1. **Joel Mokyr** – Northwestern University, United States
2. **Philippe Aghion** – Collège de France, INSEAD, and London School of Economics
3. **Peter Howitt** – Brown University, United States

Prize Distribution:

- Half of the award: Joel Mokyr
- Remaining half: Jointly shared by Philippe Aghion and Peter Howitt

Citation:

"For their pioneering contributions in explaining innovation-driven economic growth."

Background and Context

For most of human history, economic stagnation was the norm despite sporadic technological progress. Rapid and sustained economic growth — as experienced in the last two centuries — is a relatively recent phenomenon.

The 2025 Nobel Laureates provided comprehensive explanations for this transformation:

- Joel Mokyr offered a historical perspective rooted in the Industrial and Scientific Revolutions.
- Aghion and Howitt constructed a mathematical model that demonstrated how continuous innovation drives macroeconomic growth through the process of creative destruction.

Together, their work provides a unified understanding of why and how societies transition from stagnation to sustained prosperity.

I. Joel Mokyr's Contribution — The Historical Foundations of Growth

1. Focus of Study

Joel Mokyr, an economic historian, explored why the modern world began experiencing sustained economic growth after centuries of near-zero progress, despite the presence of inventions and craftsmanship.

2. Key Argument

Before the Industrial Revolution, technological advances were largely based on "prescriptive knowledge" — people knew how to perform tasks but not why they worked.

Example: Craftsmen could build machines or tools but lacked scientific understanding of the underlying physical or chemical processes.

3. The Scientific and Enlightenment Revolution

Between the 16th and 17th centuries, the Scientific Revolution changed the nature of knowledge.

- Scholars began emphasizing measurement, experimentation, and reproducibility.
- This led to the development of "propositional knowledge" — knowing why something works.

The merging of prescriptive and propositional knowledge created a foundation for technological progress based on science, resulting in useful and replicable innovations.

4. The Role of Openness and Institutions

Mokyr highlighted that knowledge alone wasn't sufficient for economic transformation. Societies needed to be open to change, even if it disrupted existing systems — a process famously called "creative destruction" by Joseph Schumpeter.

Examples:

- The establishment of the British Parliament that curtailed the power of traditional elites, enabling industrial interests to thrive.
- The defeat of the Luddite Movement (early 19th century) that resisted mechanisation in textile industries.

Such institutional and cultural openness allowed societies to embrace innovation despite short-term disruptions.

5. Essence of Mokyr's Work

Sustained growth arises when scientific inquiry combines with social acceptance of innovation. The Enlightenment's values — curiosity, rationality, and openness — were as crucial as technological inventions themselves.

II. Philippe Aghion & Peter Howitt's Contribution — The Modern Model of Innovation

1. Core Focus

Aghion and Howitt approached the same question — how innovation sustains economic growth — from a modern, theoretical, and mathematical perspective.

Their 1992 research paper introduced the first "Schumpeterian model of endogenous growth with general equilibrium."

2. Key Observations

They noted that while national economies appear to grow steadily, intense dynamism occurs at the firm level:

- Every year, over 10% of U.S. firms shut down, and a similar number of new firms are created.
- Massive job creation and destruction occur simultaneously.

This constant churn represents creative destruction in action — the replacement of old firms and technologies with newer, more efficient ones.

3. The Innovation-Competition Mechanism

Their model explains how competition and innovation interact to generate continuous growth:

1. Firms innovate and receive patents, giving them temporary monopolies and profits.
2. Other firms attempt to out-innovate them to secure new patents.
3. This rivalry fuels an ongoing cycle of technological improvement.

However, such innovation requires investment, which depends on household savings, interest rates, and economic expectations — all of which are interlinked in their model.

4. The General Equilibrium Framework

The Aghion–Howitt model uniquely connects:

- **Production and R&D investment**
- **Financial markets and savings behaviour**
- **Macroeconomic variables like interest rates and growth rates**

This integrated framework showed that economic growth cannot be understood in isolation from innovation, competition, and finance.

5. Core Insight

Economic growth is sustained when institutions allow old technologies to be replaced by new ones, ensuring continuous innovation rather than protection of incumbents.

III. Common Theme — Innovation as the Engine of Progress

Despite differing methodologies, the central message in both Mokyr's and Aghion–Howitt's work is identical:

- Innovation is the cornerstone of modern growth.

- Societal acceptance of creative destruction and institutional flexibility are vital for sustaining progress.

Their combined research highlights that both ideas (knowledge) and incentives (market structures) are essential for economic evolution.

IV. Policy Implications

The laureates' work raises crucial policy questions relevant to modern economies:

1. Should Governments Subsidise Innovation?

- Public R&D subsidies can boost technological progress, but they risk concentrating benefits among select firms.
- The challenge is to ensure social, not just corporate, gains from innovation.

2. Role of Social Safety Nets

- Innovation and creative destruction displace workers and firms.
- To maintain social acceptance of change, welfare schemes and retraining programmes are essential.

3. Designing Balanced Economic Policies

- Sustainable growth requires a dual approach — encouraging innovation while protecting those temporarily displaced by it.

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Nobel Peace Prize 2025

Laureate

- María Corina Machado, Venezuelan opposition leader and democracy activist.

Award Citation

- Recognised "for her tireless work promoting democratic rights for the people of Venezuela and her efforts for a peaceful transition from dictatorship to democracy."

Significance

- Highlights the global struggle for democracy, human rights, and political freedom.
- Draws attention to Venezuela's humanitarian and political crisis, and the role of civil movements in achieving democratic reforms.
- Reinforces the idea that peace and democracy are interdependent in global governance.

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SCIENCE & TECHNOLOGY

Project Waterworth

Project Waterworth is a global undersea (submarine) cable initiative launched by Meta to enhance international digital connectivity. It aims to create one of the world's longest submarine cable systems, spanning nearly 50,000 kilometers, connecting multiple continents including Asia, Africa, South America, and North America.

The project is a major step toward building a resilient, high-capacity, and secure digital infrastructure to support the next generation of internet, cloud computing, and artificial intelligence (AI) services.

Key Features

- **Massive Scale:** The cable network will be longer than the Earth's circumference, making it one of the largest digital infrastructure projects ever undertaken.
- **High Capacity:** Equipped with 24 fiber pairs, the system is designed to transmit enormous data volumes efficiently and with reduced latency.
- **Landing Points:** India will serve as a key hub, with landing stations proposed at Mumbai and **Visakhapatnam**.
- **Enhanced Safety:** The cable will use advanced routing and deep-sea burial techniques to ensure resilience against natural and human-made damage.
- **Inclusive Design:** The project integrates regions with growing data demand, promoting equitable access to high-speed internet across developing nations.

Strategic Importance for India

- **Digital Infrastructure Boost:** It will strengthen India's position as a global digital hub by improving bandwidth, reducing data costs, and supporting large-scale cloud and AI applications.
- **Economic Growth:** Enhanced connectivity will attract foreign investment, support startups, and expand digital trade and innovation ecosystems.
- **Data Sovereignty:** By hosting landing points in India, the project ensures greater control over data flow and strengthens India's cyber-security preparedness.
- **Employment and Skill Development:** The project is expected to generate skilled employment in engineering, telecom, and data management sectors.

Global and Strategic Significance

- **Connectivity Revolution:** The network will significantly enhance international communication and enable faster cross-border data transmission.
- **Sustainability and Inclusion:** By extending connectivity to underserved coastal and island regions, it contributes to bridging the global digital divide.
- **Geo-strategic Value:** Undersea cables are critical global assets. Project Waterworth reinforces India's role in international digital diplomacy and secure internet governance.

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Maitri II

What is Maitri II?

- Maitri II (also called Maitri-2) is a new research station being set up by India in East Antarctica, very close to the existing Maitri base.
- It has received in-principle approval from the Ministry of Finance, meaning groundwork can begin.

Key Facts & Timeline

Feature	Details
Existing station & need	The existing Maitri station, built in 1988, is aging and has structural and operational limitations under Antarctic conditions.
Location	Near the current Maitri in East Antarctica (Schirmacher Oases region).
Operational capacity	Planned to house about 90 scientists.
Timeline to completion	Targeted to be operational by January 2029.
Phases of work	1. Master planning, consultant selection & designing (≈18 months) 2. Tendering, site survey, approach road, road-formation etc. (≈18 months) 3. Prefabrication & procurement, transport to staging points 4. Final construction in Antarctica (≈12 months)
Cost	Financial outlay is about ₹2,000 crore over the project duration.

Design & Features

- Designed as a "green research base", incorporating renewable energy (solar, wind) to reduce environmental impact.
- Better living conditions for scientists: improved infrastructure, living modules, hygiene & utilities.
- Automated instruments planned, which can operate and send data even when scientists are not present.
- Adherence to environmental protocols under the Antarctic Treaty System.

Significance

- Strengthens India's scientific capacity in polar research — studies like climate change, glaciology, biodiversity, atmospheric sciences.
- Modernisation of Antarctic infrastructure enhances India's role in global science diplomacy and polar science.
- Supports India's commitments under international environmental treaties.
- Provides strategic benefits: helps in asserting India's presence in Antarctica, ensuring compliance and visibility in international forums.

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IndiaAI Mission – "Safe & Trusted AI" Second EoI Projects (2025)

Context

- On December 10, 2024, IndiaAI, under the Ministry of Electronics and Information Technology (MeitY), launched the second round of Expression of Interest (EoI) under its 'Safe & Trusted AI' pillar.
- **Aim:** To ensure safe, transparent, and trustworthy use of Artificial Intelligence (AI) in line with India's socio-technical context.
- Over 400 proposals were received from academic institutions, start-ups, research bodies, and civil society.
- A multi-stakeholder committee evaluated these proposals, selecting five key projects across deepfake detection, bias mitigation, and AI robustness testing.

About IndiaAI Mission

Aspect	Details
Implementing Agency	IndiaAI, an Independent Business Division under MeitY
Objective	To democratize AI benefits, promote ethical and responsible AI, and strengthen India's AI leadership
Mission Focus Areas	Compute Infrastructure, Datasets Platform, Application Development, Research & Innovation, Safe & Trusted AI, Skilling & Workforce Development
Significance	Aligns with India's vision of technological self-reliance and responsible AI governance

Five Selected Projects under "Safe & Trusted AI" (Second EoI, 2025)

1. Deepfake Detection Tool

Project 1: Saakshya – Multi-Agent, RAG-Enhanced Framework for Deepfake Detection and Governance

Institutions: IIT Jodhpur (Consortium Lead) & IIT Madras

Focus:

- Development of an AI-driven governance framework for identifying and countering deepfakes (manipulated images/videos/audio).
- Uses Retrieval-Augmented Generation (RAG) and multi-agent systems to enhance detection accuracy.
- Promotes policy-backed detection, combining technology with ethical governance.

Significance for India:

- Helps counter misinformation and synthetic media threats.
- Supports the creation of trusted digital ecosystems vital for elections, defense, and social harmony.

Project 2: AI Vishleshak – Improving Audio-Visual Deepfake Detection and Handwritten Signature Forgery Detection

Institutions: IIT Mandi & Directorate of Forensic Services, Himachal Pradesh

Focus:

- Builds robust tools to detect audio-visual deepfakes and signature forgeries.

- Incorporates adversarial robustness, explainability, and domain generalization to make AI more transparent and adaptable.

Significance:

- Strengthens digital forensics and law enforcement capabilities.
- Enhances the reliability of AI in legal and investigative domains.

Project 3: Real-Time Voice Deepfake Detection System

Institution: IIT Kharagpur

Focus:

- Develops a real-time system capable of detecting synthetic or cloned voices used in phone scams, fraud, or impersonation.
- Integrates machine learning with voice biometrics for instant verification.

Significance:

- Addresses rising threats from AI-generated voice fraud and social engineering attacks.
- Protects citizens and institutions from financial and data theft risks.

2. Bias Mitigation

Project 4: Evaluating Gender Bias in Agriculture LLMs – Creating Digital Public Goods (DPG) for Benchmarking and Fair Data Work

Institutions: Digital Futures Lab & Karya

Focus:

- Assesses and reduces gender bias in Large Language Models (LLMs) used for agriculture-related data and advisory systems.
- Creates Digital Public Goods (DPG) for open benchmarking datasets ensuring fair representation in AI models.

Significance:

- Promotes inclusive AI that respects India's gender and rural diversity.
- Ensures that AI-based agricultural tools serve all groups fairly — critical for farmers and rural women's empowerment.

3. Penetration Testing & Evaluation

Project 5: Anvil – Penetration Testing & Evaluation Tool for LLM and Generative AI

Institutions: Globals ITES Pvt. Ltd. & IIIT Dharwad

Focus:

- Creates a testing framework to assess security vulnerabilities and robustness in Generative AI and Large Language Models.
- Simulates adversarial attacks (malicious prompts, misinformation generation) to evaluate AI system resilience.

Significance:

- Strengthens India's capacity to audit and secure AI systems before deployment.
- Key step toward AI safety certification and governance standards.

Google AI Hub, Visakhapatnam — A Milestone in India's Digital Transformation

Context

- Google has announced the establishment of India's first Artificial Intelligence (AI) Hub in Visakhapatnam, Andhra Pradesh.
- The announcement was made at Bharat AI Shakti, an event hosted by Google ahead of the India AI Summit.
- It aligns with the India AI Mission and the Viksit Bharat Vision 2047.

Key Features of the Google AI Hub

1. **Investment & Scale**
    - Investment of USD 15 billion over 2026–2030, the largest by Google in India.
    - Designed as a gigawatt-scale data center campus, enabling large-scale AI computing and cloud infrastructure.
2. **Infrastructure & Technology**
    - Incorporates Google's AI stack with advanced compute, storage, and networking systems.
    - Integrates renewable energy and energy-efficient systems for sustainability.
    - Will use Tensor Processing Units (TPUs), Google's AI chips, to complement India's AI compute infrastructure.
3. **Subsea Connectivity**
    - Development of a new international subsea cable gateway at Visakhapatnam.
    - Will connect to Google's 2 million+ miles of global terrestrial and subsea cables.
    - Enhances route diversity, complementing existing cable landings in Mumbai and Chennai.
    - Aims to make Visakhapatnam an AI and connectivity hub for South and Southeast Asia.
4. **Energy & Sustainability**
    - Focus on clean energy generation, grid resilience, and energy storage systems in Andhra Pradesh.
    - Collaboration with AdaniConnex and Airtel for power and infrastructure.
5. **Integration with India's AI Mission**
    - Supports AI-driven research, innovation, and capacity building.
    - Expected to create high-value jobs, reskill IT professionals, and foster AI startups.

Strategic Connectivity Initiatives

- Proposal for Vizag–Sittwe (Myanmar) subsea link to strengthen connectivity in Northeast India.
- Complementary proposal to make the Andaman & Nicobar Islands a global internet data hub, enhancing Indo-Pacific digital linkages.

Institutional & Economic Implications

- India's ambition to become a global AI hub.
- The need for reskilling and upskilling in the face of rapid AI transformation.
- Government support for undersea cable infrastructure and AI-first architecture.

Leprosy in India – The Road to a Disease-Free Future

Context:

India's leprosy prevalence rate has declined from 57.2 per 10,000 (1981) to 0.57 per 10,000 (2025) — marking a 99% reduction. India sustains its elimination status (PR <1/10,000) at the national level.

What is Leprosy?

- **Cause:** Bacterial infection by Mycobacterium leprae.
- **Transmission:** Through droplets from the nose and mouth during close contact with untreated patients.
- **Symptoms:** Skin patches, nerve damage, muscle weakness, loss of sensation, deformities in hands/feet/face.
- **Types:**
  - **Paucibacillary (PB):** Few or no bacilli detected.
  - **Multibacillary (MB):** High bacterial load on slit-skin smear.
- **Treatment:** Multidrug Therapy (MDT) — combination of Rifampicin, Clofazimine, and Dapsone — introduced in 1983, provided free through WHO.

India's Efforts Since Independence

Year	Milestone
1955	Launch of National Leprosy Control Programme (NLCP) using Dapsone monotherapy.
1983	Introduction of Multidrug Therapy (MDT); renamed National Leprosy Eradication Programme (NLEP).
2005	India achieved elimination as a public health problem (PR <1/10,000).
2025	31 States and 638 Districts sustain elimination status.

Major Components of NLEP

1. **Early Case Detection Campaigns (LCDC, FLC):** Door-to-door and targeted surveys in high-risk areas.
2. **Free Diagnosis & MDT Treatment:** For all PB & MB patients.
3. **Post-Exposure Prophylaxis (PEP):** Single-dose Rifampicin (SDR) to healthy contacts of patients.
4. **Digitalization:** Nikusth 2.0 – web-based portal for patient and drug stock tracking (launched 2023).
5. **Disability Prevention & Rehabilitation (DPMR):** Self-care kits, MCR footwear, reconstructive surgery, and ₹12,000 wage compensation.
6. **Community Awareness:** Sparsh campaign, IEC, and stigma reduction drives.
7. **Integration with Health Schemes:**
   - **Ayushman Bharat** – screening above 30 years.
   - **RBSK/RKSK** – screening for children and adolescents.
8. **Legal Reform:** Steps to abolish discriminatory laws against leprosy patients.

Recent Strategic Initiatives (2023–2027)

- National Strategic Plan (NSP) & Roadmap for Leprosy (2023–27) aligned with WHO's Global Leprosy Strategy 2021–2030.
- **Goals:**
  - Interrupt transmission by 2027 at district level.

- Zero indigenous cases by 2030.

- **Key Focus Areas:**
- Targeted case detection and surveillance.
- Use of digital tools and AI-based tracking.
- Research on leprosy vaccine and antimicrobial resistance (AMR) surveillance.
- Integration of mental health services for patients and families.
- Multi-disease integration with other NTDs.

Key Achievements (2025)

- **Prevalence Rate:** 0.57 per 10,000 (↓99% since 1981).
- **Child Cases:** Dropped from 9.04% (2014–15) → 4.68% (2024–25).
- **Grade-II Disability:** Declined from 4.68/million (2014–15) → 1.88/million (2024–25).
- **PEP Coverage:** Increased from 71% (2019–20) → 92% (2024–25).
- **Digital Surveillance:** Nikusth 2.0 operational in all states.
- **International Recognition:** WHO (2023) reaffirmed India's 2005 elimination milestone.

Global & National Collaborations

- **Partners:** WHO, ILEP, Sasakawa Health Foundation, World Bank, Global Partnership for Zero Leprosy (GPZL), NGOs (ALERT India, Hind Kushth Nivaran Sangh, etc.).
- **Support Areas:** MDT supply, technical training, surveillance, awareness, and rehabilitation.

Challenges Ahead

- Pockets of high prevalence in tribal and hard-to-reach regions.
- Social stigma and late reporting.
- Drug resistance and relapse surveillance.
- Need for sustained funding and awareness post-elimination.

Way Forward

- Continue PEP-SDR coverage and expand digital surveillance.
- Integrate leprosy services into general healthcare system.
- Strengthen partnerships and local community participation.
- Introduce vaccine once available and monitor AMR trends.

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Atomic Stencilling Technique: Breakthrough in Nanomaterial Design

Why in News

Scientists from the United States and South Korea have devised a novel atomic stencilling method that enables polymer patches to be applied onto gold nanoparticles with unprecedented atomic-level precision, marking a major advancement in nanoscale material engineering.

What Is Atomic Stencilling?

- **Definition:** A cutting-edge nanofabrication technique in which iodide atoms serve as atomic-scale "masks" (stencils) on the surface of nanoparticles.
- **Purpose:** These atomic masks control where polymers attach, allowing researchers to "paint" **nanoscale patches** with near-atomic accuracy.

- **Outcome:** Produces nanoparticles that can self-assemble into uniform, complex 3-D structures (superlattices).

How It Works

1. **Masking Phase (Atomic Stencilling):**
    - Iodide atoms selectively adhere to certain crystal faces of a gold nanoparticle, protecting those regions.
2. **Patching Phase (Polymer Coating):**
    - A polymer solution binds only to the exposed, unmasked areas, forming precise polymer patches.

The resulting particles exhibit identical patch size, geometry, and placement, enabling predictable self-assembly — a feat previously considered theoretical.

Significance & Advantages

- **Atomic-scale control** → tailor-made nanoparticle design.
- **Uniformity** → reproducible and stable superstructures.
- **Scalable synthesis** → simplified large-batch production.
- **Material versatility** → compatible with gold, silver, silica, and diverse polymers.
- **Functional tunability** → adjustable optical, electronic, and chemical properties.

Applications

Domain	Potential Use
Medicine	Targeted drug delivery through site-specific binding and controlled release.
Catalysis	Improved surface reactivity and selectivity via patterned active zones.
Optoelectronics & Photonics	Building plasmonic and light-responsive metamaterials.
Energy Systems	Enhanced charge transfer and stability in solar cells & batteries.
Smart Materials	Basis for programmable, adaptive nanostructures with self-assembly.

Broader Context

- Demonstrates the shift from traditional top-down fabrication to atomic-level bottom-up design.
- Paves the way for programmable matter—materials whose properties can be custom-engineered atom by atom.
- Strengthens research in metamaterials, nanomedicine, and quantum devices.

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Cloud Service Provider (CSP)

A major outage at the Amazon Web Services (AWS) on Monday disrupted a large portion of the internet, taking down apps, websites and online tools used by millions of people around the world, before services were eventually restored. The hours-long breakdown of the cloud system that supports a portion of the internet revealed just how much of modern-life depends on the infrastructure – from banking apps and airlines to smart home devices and gaming platforms.

Definition

A Cloud Service Provider (CSP) is a third-party IT company that offers on-demand, scalable computing resources—such as data storage, servers, databases, networking, and software—over the Internet. These services help organizations avoid investing in their own physical infrastructure.

Key Service Models

1. **Infrastructure as a Service (IaaS):**
   - Provides virtualized hardware resources such as compute, storage, and networking.
   - Users manage their own applications and data.
   - **Example:** Amazon EC2 (Elastic Compute Cloud), Microsoft Azure Virtual Machines.
2. **Platform as a Service (PaaS):**
   - Offers a development and deployment environment that includes operating systems, middleware, and runtime support.
   - Developers can build applications without managing infrastructure.
   - **Example:** Google App Engine, AWS Elastic Beanstalk.
3. **Software as a Service (SaaS):**
   - Delivers ready-to-use software applications over the internet.
   - Entirely managed by the CSP.
   - **Example:** Gmail, Microsoft 365, Google Docs.

Types of Deployment Models

- **Public Cloud:** Services shared among multiple users (e.g., AWS, Azure).
- **Private Cloud:** Dedicated to a single organization for greater control and security.
- **Hybrid Cloud:** Combines public and private cloud features.
- **Multi-Cloud:** Utilizes multiple CSPs for different requirements.

Leading Cloud Service Providers

- **Global leaders:** Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP).
- **Other players:** IBM Cloud, Oracle Cloud, Alibaba Cloud, Red Hat, DigitalOcean, Rackspace. AWS (Amazon Web Services) is a cloud service platform made by Amazon.

  It provides computing power, storage, databases, and many other tools — all available over the internet. Think of it like this:Instead of buying your own computer servers, building a data center, and maintaining it —you can rent everything you need from AWS, just like you rent movies on Amazon Prime.

Benefits

- **Scalability:** Instantly scale resources up or down.
- **Cost Efficiency:** Pay-as-you-go model reduces capital expenditure.
- **Business Agility:** Faster deployment and innovation.
- **Reliability:** High uptime and robust backup systems.
- **Mobility:** Remote access to applications and data.
- **Disaster Recovery:** Ensures data redundancy and continuity.

Challenges

- **Vendor Lock-in:** Difficulty in switching between providers.
- **Security Responsibilities:** Shared model requires user vigilance.
- **Complex Contracts:** Varying SLAs across multiple vendors.
- **Compliance Risks:** Data storage regulations may differ by country.

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ENVIRONMENT

Carbon Capture and Storage (CCS)

Context

- A report by Climate Analytics (October 6, 2025) warns that growing support for Carbon Capture and Storage (CCS) technologies across Asian countries could lead to 25 billion tonnes of additional greenhouse gas (GHG) emissions by 2050, undermining the Paris Agreement.
- The report assessed CCS plans in China, India, Japan, South Korea, Indonesia, Thailand, Malaysia, Singapore, and Australia — countries responsible for over half of global fossil fuel use and emissions.

Key Findings of the Report

1. **Emission Trends**
   - Emissions from developing Asian economies — notably India and Southeast Asian countries — are not yet peaking and must decline rapidly to meet climate goals.
   - China and India will play a decisive role in determining global emission pathways.
2. **CCS Performance Issues**
   - Real-world CCS projects have underperformed:
     - Average capture rates ~50% instead of the claimed 90–95%.
   - Deploying CCS in power generation could double electricity costs compared to renewable energy with storage.
3. **Economic & Climate Risks**
   - CCS expansion could lock in fossil fuel use, leading to stranded assets and economic risks.
   - Increased CCS dependence could divert resources from cleaner, proven alternatives like renewables, green hydrogen, and electrification.
4. **Regional Comparison**
   - **Japan, South Korea, Australia**: Actively financing and promoting CCS to preserve fossil fuel industries.
   - **China**: Has the second-largest CCS pipeline in Asia (after Australia) and supports new projects under its 2023 Green & Low-Carbon Technology Plan.
   - **India**: Minimal CCS presence but may turn to it for hard-to-abate sectors (steel, cement).
5. **Industrial Demand in India**
   - Steel demand expected to grow 6.3% annually (2025–2030).
   - Cement consumption could rise 40% (2025–2035) — increasing industrial emissions.
6. **Alternative Pathway**
   - A "low-CCS pathway" focused on renewable energy expansion, electrification, and efficiency would be more cost-effective and climate-aligned.

Important Terms Explained

Term	Explanation
Carbon Capture and Storage (CCS)	A technology to capture CO_2 emissions from power plants or industries and store them underground instead of releasing them into the atmosphere.
Stranded Assets	Investments that lose value due to policy changes or shifts in energy trends (e.g., fossil fuel projects becoming obsolete due to renewable energy).
Hard-to-Abate Sectors	Industries like steel, cement, and chemicals where emissions are difficult to reduce due to technological limits.
Paris Agreement (2015)	A global climate accord aiming to limit global warming to below 2°C, ideally 1.5°C, above pre-industrial levels.
Green Hydrogen	Hydrogen produced using renewable energy (like solar or wind), used as a clean fuel alternative.

India-Specific Highlights

- India to submit updated carbon-reduction targets before COP30 (Nov 10, 2025).
- India currently has limited CCS activity, but CCS could be considered for industrial decarbonization.
- However, renewables and green hydrogen offer cheaper, scalable, and lower-risk alternatives.

Mechanism of CCS –

CCS involves three main stages:

1. Capture

- CO_2 is separated from other gases produced during electricity generation or industrial processes.
- **Three main capture methods:**
  - **Post-combustion capture:** CO_2 is removed from flue gases after fuel combustion (common in coal power plants).
  - **Pre-combustion capture:** CO_2 is removed before burning the fuel, usually after converting it into a gas mixture (used in gasification plants).
  - **Oxy-fuel combustion:** Fuel is burned in pure oxygen, producing flue gases that are mostly CO_2 and water vapor, making CO_2 easier to separate.

Analogy: Like filtering out smoke from a chimney before it escapes into the air.

2. Transport

- The captured CO_2 is compressed into a dense fluid and transported:
  - By pipelines (most common)
  - By ships, trucks, or trains, for regions without pipelines.

Analogy: Think of it as bottling the gas and sending it safely through a sealed pipe network.

3. Storage

- CO_2 is injected deep underground, typically:
  - Into depleted oil and gas fields, or
  - Deep saline aquifers (porous rock formations filled with saltwater).
- The CO_2 is trapped physically and chemically, preventing leakage into the atmosphere.

Analogy: Like storing waste deep inside sealed rock vaults where it can't escape.

Why CCS Matters

- CCS can reduce up to 90% of CO_2 emissions from point sources (in theory).
- Useful for "hard-to-abate" sectors — like cement, steel, and chemicals, where direct electrification or renewable substitution is difficult.
- However, real-world projects have often underperformed (average capture ≈ 50%), and the technology is expensive and energy-intensive.

Challenges

Challenge	Explanation
High Cost	Capturing and storing CO_2 can make electricity nearly twice as expensive as renewables.
Leakage Risks	Long-term CO_2 storage safety and monitoring remain uncertain.
Energy Use	Capture and compression require significant energy — may offset some emission savings.
Delay in Transition	Overreliance on CCS may prolong fossil fuel dependence, delaying a shift to renewables.

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Green Firecrackers

Green firecrackers are eco-friendly fireworks developed by Indian scientists at CSIR (Council of Scientific and Industrial Research).

They are made to reduce air pollution while still keeping the fun and brightness of Diwali celebrations.

These crackers create less smoke, fewer harmful gases, and are 15–20% cheaper than traditional firecrackers.

Why Were They Developed?

- Normal crackers release a lot of particulate matter (dust and smoke) and gases like SO_2 and NO_x, which cause air pollution.
- The Supreme Court had restricted the use of regular crackers to control pollution.
- But this ban also affected lakhs of workers in the fireworks industry (mainly in Sivakasi, Tamil Nadu).
- So, scientists decided to make less polluting crackers that would protect both the environment and jobs.

Types of Green Firecrackers

Scientists have made three main types of green crackers:

Name	Full Form	Key Feature
SWAS	Safe Water Releaser	Releases water vapour which helps reduce dust and gases
SAFAL	Safe Minimal Aluminium	Uses very little aluminium to reduce smoke
STAR	Safe Thermite Cracker	No use of harmful chemicals like potassium nitrate or sulfur

How They Work

- These crackers use different chemicals that release water vapour and clean air while burning.
- This helps reduce particulate matter by 30–40% and lower harmful gas emissions.
- They make the same amount of sound (around 105–115 decibels) as normal crackers — so the fun remains the same!

Testing and Safety

- A special Emission Testing Facility has been set up at CSIR-NEERI, Nagpur.
- This lab measures the smoke and gases that come out when the crackers are burnt.
- Raw material testing labs are also being built in Sivakasi to ensure quality materials are used.

New Innovation – E-Crackers

CSIR scientists are also working on electronic crackers (E-crackers) such as:

- E-Ladi, E-Anar, and E-cracker show systems
- These create light and sound using electricity, not chemicals.
- The E-Ladi uses a high-voltage electric spark (like a mini Tesla coil) to make the same "bursting" effect safely.

Other Eco-friendly Innovations

- PURE-WAYU systems are being tested to control air pollution after firecrackers are burst.
- Some crackers replace aluminium with magnesium, which burns cleaner.
- Even flowerpots and Bijli crackers have been redesigned to reduce dust and smoke.

Labs Behind the Project

Eight CSIR labs worked together on this project, including:

- **CSIR-NEERI (Nagpur)** – coordinated testing
- **CSIR-CEERI (Pilani)** – developed electronic crackers
- **CSIR-CECRI (Karaikudi)** – worked on reduced-emission chemical formulations
- **CSIR-IICT, IITR, NCL, NBRI, CMERI**, and others

Why It Matters

- 30–40% less pollution
- Cheaper than regular crackers
- Jobs saved for over 5 lakh families
- Promotes Clean and Safe Diwali

Who approves Green Crackers in India?

Only Green Crackers that are approved and certified by the following two agencies are allowed to be manufactured, sold, and used in India:

1. **CSIR–NEERI** (National Environmental Engineering Research Institute)
   - It is a research institute under the Council of Scientific and Industrial Research (CSIR).
   - NEERI develops and tests green cracker formulations, ensuring that they reduce emissions (like PM, SO_2, and NOx) by at least 30% compared to traditional ones.

- It issues emission testing certificates to manufacturers once the product meets "green cracker" standards.

2. **PESO** (Petroleum and Explosives Safety Organisation)
   - It works under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
   - PESO is responsible for the safety approval, licensing, and regulation of explosives (including firecrackers).
   - It checks whether the green crackers are safe to store, transport, and use.

Legal Permission

The Supreme Court of India (2018 order) and later National Green Tribunal (NGT) directions allow only manufacture, sale, and use of green crackers, that are approved by CSIR–NEERI and PESO, and carry a QR code and green logo for authentication.

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Trichloroethylene (TCE)

A recent study has found that long-term exposure to the industrial solvent Trichloroethylene (TCE), especially in outdoor environments, may be associated with an elevated risk of developing Parkinson's disease. This finding has renewed scientific and regulatory attention toward the health and environmental hazards of TCE.

About Trichloroethylene (TCE)

Trichloroethylene is a volatile, colorless liquid organic compound that does not occur naturally but is manufactured synthetically through chemical processes. It has been extensively used across industries for its solvent properties.

Major Applications

- Used primarily in the manufacture of refrigerants and hydrofluorocarbons (HFCs).
- Serves as a degreasing agent for cleaning metal machinery and parts.
- Commonly found in household and commercial cleaning products, including aerosol sprays, paint removers, carpet and tool cleaners, spray adhesives, and cleaning wipes.
- Dry-cleaning facilities also employ TCE for stain removal and spot treatment.

Sources & Pathways of Exposure

TCE can contaminate air, water, and soil in areas where it is used or manufactured. It degrades slowly, persisting in the environment and often seeping into groundwater through soil.
Humans may be exposed to TCE by:

- Inhaling vapors in indoor or outdoor air,
- Drinking contaminated groundwater, or
- Consuming food washed or processed with polluted water.

Health Impacts of TCE Exposure

Prolonged or repeated exposure to TCE has been linked to several adverse health effects, including:

- Liver and kidney damage, with increased risks of liver and kidney cancers.

- Genotoxic and immunotoxic effects, indicating potential DNA and immune system harm.
- Evidence suggests it may act as a teratogen, causing developmental defects.
- Associations have also been found with non-Hodgkin lymphoma, reproductive issues (such as infertility in both sexes), impaired fetal growth, and cardiac malformations.

The emerging evidence of its connection to Parkinson's disease underscores the need for stricter environmental controls and safer industrial alternatives to this persistent chemical.

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Commission for Air Quality Management (CAQM) in NCR and Adjoining Areas

With the onset of the paddy harvesting season across northern India, the Commission for Air Quality Management (CAQM) has intensified its efforts to prevent stubble burning, a major contributor to the deterioration of winter air quality in Delhi and the adjoining regions. The Commission is closely coordinating with Punjab, Haryana, Uttar Pradesh, and Rajasthan to implement preventive measures and ensure real-time monitoring of farm fires through satellite data and ground verification teams.

About the Commission for Air Quality Management (CAQM)

The CAQM is a statutory authority established under the Commission for Air Quality Management in the National Capital Region and Adjoining Areas Act, 2021. It was constituted to provide integrated and science-based solutions for tackling air pollution in the Delhi-NCR region and nearby states.

Mandate

The Commission is tasked with:

- Ensuring better coordination, monitoring, research, and policy formulation to improve air quality.
- Taking action for prevention, control, and abatement of air pollution in Delhi and its adjoining states.
- Harmonizing efforts across multiple state and central agencies to address transboundary pollution issues, particularly during the winter smog season.

Jurisdiction

The Commission's jurisdiction covers the National Capital Territory (NCT) of Delhi and adjoining regions of Haryana, Punjab, Rajasthan, and Uttar Pradesh, where activities significantly influence NCR's air quality.

Powers of the CAQM

- **Regulatory Authority:** Can restrict or prohibit activities contributing to air pollution.
- **Research & Policy:** Authorized to conduct investigations, prepare codes and guidelines, and recommend policy measures for pollution control.
- **Binding Directions:** Its orders and directives are legally binding on individuals, organizations, and government authorities.
- **Inspection & Enforcement:** Can inspect premises, enforce regulations, and ensure compliance through appropriate penalties.
- **Accountability:** The Commission is directly answerable to Parliament, ensuring transparency and oversight.

Composition

- **Chairperson:** A senior government official of the rank of Secretary or Chief Secretary, serving a three-year term or until the age of 70 years.
- **Ex-Officio Members:** Chief Secretaries/Secretaries handling environment departments of Delhi, Punjab, Haryana, Rajasthan, and Uttar Pradesh.
- **Technical Members:** Three full-time experts from relevant fields.
- **NGO Representatives:** Three members from recognized non-governmental organizations working on environmental issues.
- **Institutional Representation:** Technical members from CPCB, ISRO, and NITI Aayog.

Significance

The CAQM represents India's most comprehensive institutional framework to combat air pollution at a regional scale. By integrating scientific monitoring, legal enforcement, and inter-state coordination, it aims to create sustainable, long-term solutions to the persistent air quality crisis in the National Capital Region.

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Coral Triangle

The Philippines is set to host Southeast Asia's first coral larvae cryobank, creating a regional network of cryobanks in collaboration with research institutions from Taiwan, Indonesia, Malaysia, and Thailand. This initiative aims to preserve coral genetic material, support reef restoration, and mitigate the impacts of climate change on coral ecosystems across the Coral Triangle.

About the Coral Triangle

- **Nicknamed**: "Amazon of the seas"
- **Area:** Covers over 10 million square kilometres of marine territory in Southeast Asia and the western Pacific.
- Countries Involved: Indonesia, Malaysia, Papua New Guinea, Singapore, Philippines, Timor-Leste, and Solomon Islands.

Ecological Significance

- **Coral Diversity:** Home to more than 75% of the world's coral species.
- **Marine Fauna:** Supports one-third of all reef fish species and six of the seven marine turtle species.
- **Mangroves:** Hosts vast mangrove forests, crucial for coastal protection and fisheries.
- **Human Dependence:** Sustains the food security and livelihoods of over 120 million people.

Major Threats

- **Climate Change:** Coral bleaching due to rising sea temperatures.
- **Pollution:** Air, water, and soil contamination affecting reef health.
- **Destructive Fishing Practices:** Blast fishing, cyanide fishing, and overfishing.
- **Habitat Loss:** Coastal development, sedimentation, and erosion.

Coral Biology Basics

- **Nature:** Corals are sessile animals, permanently attached to the ocean floor.

- **Symbiosis:** Live in a mutualistic relationship with zooxanthellae algae, which provide nutrients via photosynthesis.
- **Structure:** Individual corals are called polyps, which form large colonies of hundreds to thousands of genetically identical polyps.
- **Feeding:** Polyps use tentacle-like structures to capture plankton and organic particles from water.

Significance of Coral Cryobanks

- **Genetic Preservation:** Safeguards coral biodiversity against climate-induced bleaching and habitat degradation.
- **Restoration Efforts:** Enables restoration of degraded reefs using stored larvae.
- **Regional Collaboration:** Strengthens scientific cooperation across Coral Triangle countries for marine conservation.

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Asola Bhatti Wildlife Sanctuary

As part of Wildlife Week celebrations, Delhi's Forest and Wildlife Department announced six days of daily bird walks at Asola Bhatti Wildlife Sanctuary, aimed at promoting public awareness about biodiversity and conservation. The initiative highlights the sanctuary's rich avian diversity and its ecological significance in Delhi's landscape.

About Asola Bhatti Wildlife Sanctuary

- **Location:** Southern Delhi and northern parts of Faridabad and Gurugram in Haryana.
- **Area:** ~32.71 sq.km.
- **Geography:** Situated on the Southern Delhi Ridge of the Aravalli hill range, merging with the Indo-Gangetic plains.
- **Ecological Significance:** Part of the North Aravalli Leopard Wildlife Corridor, connecting Sariska National Park (Rajasthan) to the Delhi Ridge, facilitating wildlife movement and genetic exchange.

Vegetation and Flora

- **Vegetation Type:** Classified under Northern Tropical Thorn Forests (Champion & Seth, 1968).
- **Adaptations:** Native plants show xerophytic traits—thorny structures, wax-coated leaves, succulent tissues, and tomentose surfaces.
- **Notable Flora:** Neem (Azadirachta indica), Peepal (Ficus religiosa), Jamun (Syzygium cumini), and a large variety of medicinal plants.

Fauna

- **Mammals:** Nilgai, Indian Porcupine, Indian Hare, Indian Grey Mongoose.
- **Birds:** Over 200 species, including Indian Peafowl, Red Junglefowl, and Indian Grey Hornbill.
- **Significance:** Supports rich biodiversity in a largely urbanized area, serving as a critical green lung for Delhi and adjoining Haryana districts.

Conservation & Public Awareness

- **Bird Walks:** Six-day daily bird walks aim to educate citizens, promote birdwatching, and raise awareness about urban wildlife conservation.

- **Corridor Protection:** Ensures continued connectivity for leopards and other wildlife across the Aravalli landscape.
- **Ecotourism:** Encourages responsible eco-tourism and engagement with local communities for sustainable conservation practices.

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Sundarbans National Park

The International Union for Conservation of Nature (IUCN) recently reported that the conservation outlook of Sundarbans National Park has declined from 'Good with Some Concerns' to 'Significant Concerns' over the past five years.

About Sundarbans National Park

- **Location:** Southeastern West Bengal, near Kolkata; part of the Gangetic Delta
- **Ecosystem:** Mangrove forest; part of the larger Sundarbans mangrove forest, one of the largest in the world
- **Establishment:** 1973 under Project Tiger to protect the Royal Bengal Tiger
- **UNESCO Recognition:**
    - World Heritage Site in 1987
    - Included in World Network of Biosphere Reserves in 2000
- Biosphere & Ramsar Designation: Declared a Biosphere Reserve in 1989; Sundarbans Wetland became a Ramsar site in 2019

Geography and Rivers

- Formed by the convergence of the Ganga, Brahmaputra, and Meghna rivers

Flora

- Sundari tree, Golpati, Champa, Dhundul, Genwa, Hatal

Fauna

- Mammals & Carnivores: Royal Bengal Tiger, fishing cats, leopard cats, Indian grey mongoose, pangolin, wild boar

Other Wildlife: Macaques, flying foxes

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Indian Wolf

The International Union for Conservation of Nature (IUCN) has, for the first time, conducted a distinct assessment of the Indian wolf (Canis lupus pallipes), recognizing it as a separate subspecies of the grey wolf.

About the Indian Wolf

- **Taxonomy:** A subspecies of the Grey Wolf, native to the Indian subcontinent and parts of Southwest Asia.
- **Habitat:** Commonly found in semi-arid grasslands, scrublands, and pastoral landscapes.
- **Behavioural Traits:**
    - Lives in small packs of about 6–8 individuals.
    - Less vocal compared to other wolves and seldom howls.

  - Territorial in nature and mainly nocturnal hunters.
- **Physical Features:** Intermediate in size between the Tibetan and Arabian wolves, with a shorter, thinner coat suited to warm climates.
- **Geographical Range:** Distributed across India, Pakistan, Afghanistan, Nepal, Bhutan, Iran, Turkey, Israel, and Syria.

Major Threats

The species is facing a steady population decline due to:

- Loss of habitat,
- Depletion of natural prey, and
- Human-induced killings and conflicts.

Conservation Status

- **IUCN Red List:** Vulnerable
- **CITES:** Appendix I
- **Wildlife (Protection) Act, 1972:** Schedule I

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National Energy Conservation Awards (NECA)

The Bureau of Energy Efficiency (BEE) has invited applications for the 35th edition of the National Energy Conservation Awards (NECA) 2025, one of India's most prestigious recognitions for excellence in energy efficiency and sustainable practices.

About National Energy Conservation Awards (NECA)

- **Established:** The awards were instituted in 1991 by the Bureau of Energy Efficiency (BEE).
- **Purpose:** To honour outstanding achievements by industries, buildings, transport undertakings, and institutions that have significantly reduced energy consumption and promoted energy-efficient technologies and innovations.
- **Significance:** NECA serves as a national platform to inspire organizations and individuals to adopt energy-efficient measures and contribute to India's sustainable development goals.

Award Categories for NECA 2025

1. Industries
2. Transport Sector
3. Buildings
4. Institutions (State/SDA – evaluated through the State Energy Efficiency Index)
5. Energy-Efficient Appliances
6. Energy Efficiency Innovation
7. Digital Content Creators and Influencers (New Category)

New Category Highlight:

The inclusion of Digital Content Creators and Influencers acknowledges the increasing role of social media in promoting public awareness about energy conservation.

This initiative aims to mobilize creators as "ambassadors of change", encouraging citizens to adopt energy-conscious lifestyles.

About the Bureau of Energy Efficiency (BEE)

- **Established:** March 1, 2002, under the provisions of the Energy Conservation Act, 2001.

- **Mission:** To formulate and implement policies and strategies for efficient use of energy resources, emphasizing self-regulation and market-driven approaches.
- **Objective:** To reduce the energy intensity of the Indian economy, thereby supporting national energy security and climate goals.
- **Functions:**
    - Coordinate with designated consumers and agencies to implement energy efficiency programs.
    - Recognize and utilize existing infrastructure for effective energy management.
    - Promote awareness, training, and innovation in energy conservation initiatives.

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National Environmental Engineering Research Institute (NEERI)

The Supreme Court of India has recently permitted the limited use of green crackers in the Delhi-NCR region for this year's Diwali celebrations. These green crackers are formulated and approved by the National Environmental Engineering Research Institute (NEERI) to minimize air pollution.

About National Environmental Engineering Research Institute (NEERI)

- **Nature:** NEERI is a premier research institute established and funded by the Government of India, specializing in environmental science and engineering.
- **Objective:** The institute undertakes research, development, and consultancy in areas related to environmental management, pollution control, and sustainable development.
- **Affiliation:** It functions as a constituent laboratory of the Council of Scientific and Industrial Research (CSIR) under the Ministry of Science and Technology.

Historical Background

- **Established:** 1958, in Nagpur, originally as the Central Public Health Engineering Research Institute (CPHERI).
- **Initial Focus:** The institute initially concentrated on public health engineering, including water supply, sewage disposal, and industrial pollution.
- **Rechristened:** In 1974, as National Environmental Engineering Research Institute (NEERI), reflecting a broadened scope towards global environmental challenges such as pollution control, resource management, and ecological balance.

Key Functions and Contributions

- Conducts research and innovation in environmental engineering and management.
- Provides technical support and policy advice to government bodies and industries.
- Develops eco-friendly technologies, such as green crackers, to curb environmental degradation.
- Works on projects related to air and water quality, solid waste management, climate change mitigation, and sustainable urban development.

Headquarters and Regional Presence

- **Headquarters:** Nagpur, Maharashtra
- **Zonal Laboratories:** Located in Chennai, Delhi, Hyderabad, Kolkata, and Mumbai to ensure regional outreach and research collaboration.

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Zombie Deer Disease

Recently, health officials in Florida (USA) confirmed cases of Chronic Wasting Disease (CWD), popularly known as "Zombie Deer Disease."

This marks the first detection of the disease in the southeastern United States, raising concerns about its potential spread to new wildlife populations.

About Zombie Deer Disease (Chronic Wasting Disease – CWD)

- **Nature:** A progressive, degenerative, and fatal neurological disorder that affects members of the deer family (Cervidae) such as *deer, elk, moose, and reindeer.
- **Affected System:** Central Nervous System (CNS) — primarily the brain and spinal cord.
- **First Identified:** Late 1960s in Colorado, USA.

Cause of the Disease

- **Causative Agent:** Infectious misfolded proteins known as prions.
- **Unique Nature of Prions:**
    - Unlike viruses or bacteria, prions contain no DNA or RNA.
    - These misfolded proteins induce normal brain proteins to misfold as well, leading to a chain reaction.
- **Effect:**
    - Accumulation of abnormal proteins causes spongy holes in brain tissue, leading to severe neurological degeneration.

Transmission

- Highly contagious among deer and related species.
- Spread via body fluids: saliva, urine, feces, blood.
- Can occur through direct animal contact or contaminated environments (soil, water, or plants).
- Persistence: Prions can remain infectious for years in the environment, making eradication extremely difficult.

Symptoms in Infected Animals

CWD has a long incubation period (18–24 months), during which animals appear healthy.

Observable signs include:

- Gradual weight loss (wasting)
- Loss of coordination and abnormal posture
- Excessive salivation and drooling
- Increased thirst and urination
- Loss of fear of humans or disorientation
- Eventually, complete debilitation and death

Treatment and Control

- No vaccine or cure currently exists.
- Always fatal once symptoms appear.
- **Control strategies include:**
    - Culling of infected populations,
    - Testing and monitoring of herds,

- Restrictions on movement of deer and elk carcasses between regions.

Risk to Humans

- No confirmed cases of CWD transmission to humans so far.
- However, due to similarities with other prion diseases (like mad cow disease or Creutzfeldt–Jakob disease), health authorities maintain a high level of caution.
- The U.S. Centers for Disease Control and Prevention (CDC) recommends avoiding consumption of meat from infected animals.

Global Relevance

- CWD has been detected in North America, Scandinavia, and South Korea.
- The disease poses an ecological threat to wild ungulate populations and economic concerns for wildlife tourism and hunting sectors.

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Central Asian Mammals Initiative (CAMI)

Representatives from several Central Asian nations have recently endorsed the Central Asian Mammals Initiative (CAMI), reaffirming their commitment to protecting 17 iconic migratory mammal species across shared borders. The initiative highlights the importance of transboundary conservation zones crucial for sustaining biodiversity in the region.

About the Central Asian Mammals Initiative (CAMI)

- **Launch:** 2014, during the 11th Meeting of the Conference of the Parties (COP11) to the Convention on the Conservation of Migratory Species of Wild Animals (CMS).
- **Objective:** To halt and reverse the population decline of 17 migratory mammal species across 14 Central Asian countries.
- **Approach:** Provides a unified regional framework to address cross-border threats, such as habitat fragmentation, poaching, and climate change impacts on migratory routes.

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Striped Hyena Sighting

Forest officials at Kali Tiger Reserve, near Dandeli (Uttara Kannada district, Karnataka), recently recorded the presence of a striped hyena (locally called katte kiruba).

- The sighting is significant because hyenas are rarely spotted in the moist forest habitats of the Western Ghats, being more common in dry scrublands and arid zones.

About Kali Tiger Reserve

- **Location:** Uttara Kannada district, Karnataka.
- **Total Area:** 834.16 sq. km
- **Constituent Areas:** Formed by merging
  - Dandeli Wildlife Sanctuary, and
  - Anshi National Park (together now form a single protected landscape).
- **Biogeographic Zone:** Western Ghats (biologically sensitive region)

Key Physical Features

- **River:** The Kali River, lifeline of Uttara Kannada, flows through the reserve — hence the name Kali Tiger Reserve.

- **Vegetation:**
  - Semi-evergreen and moist deciduous forests, with bamboo and grasslands interspersed.
- **Elevation:** Lies along the Western Ghats escarpment, providing diverse micro-habitats.

Flora

- Dominant trees include teak, silver oak, eucalyptus, and many medicinal plants.

Fauna

- **Major species:** Tiger, Leopard, Elephant, Gaur (Bison), Wild Dog, Sambar, Spotted Deer, Sloth Bear, Wild Boar, Langur, Bonnet Macaque, etc.
- **Avifauna:** Notably, it has one of the highest populations of Great Indian Hornbills in the Western Ghats.
- **Unique presence:** Black Panther sightings are frequent here.
- **Recent highlight:** Presence of Striped Hyena, showing habitat diversity and good prey base.

Conservation Importance

- A critical tiger habitat under Project Tiger.
- Acts as an ecological corridor connecting Goa, Karnataka, and Maharashtra forest landscapes.
- Vital for Western Ghats biodiversity conservation.

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Intrusion Detection System (IDS)

- The Northeast Frontier Railway (NFR) has successfully completed trials of the Intrusion Detection System (IDS) in four key sections.
- The initiative is aimed at preventing wildlife—especially elephant—casualties caused by train collisions in forested railway zones.

About Intrusion Detection System (IDS)

- **Launched by:** Northeast Frontier Railway (NFR), Ministry of Railways
- **Purpose:**
  To detect animal movement, particularly elephants, near railway tracks, and alert train operators in real time to prevent accidents.
- **Distance from Track:** Installed 10 metres parallel to railway tracks.

How the IDS Works

- **Technology Used:**
  Employs advanced optical fibre sensing technology that detects vibrations caused by the movement of large animals (like elephants).
- **Mechanism:**
  - The sensor cables transmit vibration signals to a control room.
  - The system then generates real-time alerts for train drivers and control rooms.
  - This allows for timely preventive action, such as slowing down or halting trains.

Significance

- **Wildlife Protection:**
  Helps reduce elephant deaths on railway tracks, a major concern in regions like Assam, North Bengal, and Odisha.

- **Operational Efficiency:**
  Enables smooth and safe railway operations in forest and wildlife-sensitive corridors.
- **Environment–Development Balance:**
  Reflects the government's attempt to reconcile infrastructure expansion with ecological conservation.

Background

- India records several elephant-train collision incidents every year, particularly along the NFR zone, which passes through Assam, West Bengal, and parts of Arunachal Pradesh.
- IDS forms part of Indian Railways' broader initiative to introduce technology-driven wildlife conservation measures (like speed sensors, automatic whistle systems, and drone surveillance).

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Kashmir's first Chrysanthemum Garden has been opened for tourists, adding to the region's floral tourism potential and promoting eco-tourism.

About Chrysanthemum

- **Scientific Name:** Chrysanthemum spp.
- **Family:** Asteraceae (Sunflower family)
- **Type:** Perennial herbaceous flowering plant
- **Native Range:** Asia and Northeastern Europe

Characteristics

- **Growth**: 50–150 cm tall
- **Leaves:** Deeply lobed
- **Flowers:** Large flower heads — white, yellow, or pink in wild species
- **Blooming Season:** Autumn (late flowering plant)

Climatic & Soil Requirements

- **Climate:**
  - Best suited for tropical and subtropical climates.
  - Optimum temperatures —
    - Day: 20–28°C
    - Night: 15–20°C
- **Soil:**
  - Well-drained red loamy soil
  - pH: 6.0–7.0

Uses

- Medicinal:
  - Used in traditional medicine for hypertension, fevers, headaches, and inflammation.
- **Economic:**
  - Widely grown for ornamental and floriculture purposes.
  - Chrysanthemum tea and extracts are used in herbal and cosmetic industries.

Significance of the Garden in Kashmir

- Promotes floral diversity and tourism.
- Enhances eco-tourism and horticulture-based livelihoods.
- Supports the government's goal to expand Kashmir's floriculture sector beyond tulips and roses.

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POLITY AND GOVERNANCE

Supreme Court on Reservation

Context: The Supreme Court delivered a landmark judgment on September 9, 2025, clarifying the eligibility of reserved category candidates (SC/ST/OBC) to be appointed under general/unreserved category seats, especially after availing age or fee relaxations.

The case emerged from a 2015 Staff Selection Commission (SSC) recruitment drive for Constables (GD) in paramilitary forces like BSF, CRPF, ITBP, and Assam Rifles.

Supreme Court Verdict: Key Highlights

1. Reserved category candidates (SC/ST/OBC) who avail benefits like age relaxation, fee concession, or attempt relaxation cannot migrate to the unreserved category if the applicable recruitment rules or notifications bar such migration.
2. The Court ruled that eligibility for appointment to general category posts depends on:

Whether the candidate has availed relaxations, and

Whether the recruitment rules or Office Memoranda (OMs) permit such migration.

Key Legal Principles Established

1. Migration Conditional on Governing Rules

No universal right for reserved category candidates to be appointed in general category even if they secure higher marks than the last general category candidate.

Recruitment rules and specific instructions (e.g., OMs) govern the permissibility of such migration.

2. Bar Under 1998 Office Memorandum

The OM dated July 1, 1998, prohibits SC/ST/OBC candidates who avail relaxations in age, number of attempts, qualifications, or experience from being considered under unreserved vacancies.

This OM was binding on candidates unless specifically challenged.

3. Importance of Recruitment Notifications

If the recruitment notification does not bar such migration, then candidates may be allowed to compete in general category based on merit.

But where the notification expressly prohibits migration post-relaxation, such movement is not permissible.

Case Background

SSC Recruitment 2015 for Constables (GD): OBC candidates were granted 3 years of age relaxation.

Writ petitioners (OBC) scored higher than the last selected general category candidate, but had availed age relaxation.

High Court Ruling (2018 & 2019):

Allowed them to be considered under general category.

Relied on Jitendra Kumar Singh v. State of U.P. (2010) – stating that benefits availed do not negate merit.

Supreme Court's Reasoning

1. **Disagreed with High Court:**

Jitendra Kumar Singh dealt with Uttar Pradesh laws, which do not apply universally.

The 1998 OM applicable here explicitly barred such migration if relaxation was availed.

2. **Deepa E.V. v. UoI (2017) and Gaurav Pradhan v. State of Rajasthan (2018):**

Reinforced that where recruitment rules prohibit migration, the benefit of higher marks does not override the rule. These precedents support the binding nature of OMs and recruitment conditions.

Constitutional provisions-

ARTICLE 16-Title- Equality of Opportunity In Public Office Only

Article-16 (1) – Provides for equality of opportunity to all the citizens in public employment under State (Article 12).It provides equal opportunity in access to jobs, opportunity of trainingetc.Equal opportunity doesn't mean complete negligence of merit, it doesn't do away with basic merit required to carry out job.

Article-16 (2)- It prohibits state from discriminating against citizen only on the ground of religion, race, caste, sex, place of birth, residence, descent or any of them in gaining public employment under State

Article-16 (4)-It empowers the state to make special provisions in favour of Backward Classes of citizens in reserving jobs which are of the nature of public jobs.Article 16 (4) is an enabling provision which allows the state to reserve seats for Backward Classes however the reservation can be done only if 2 conditions are met- 1.the said class must be Socially and Educationally Backward. 2. Class is not well represented in public employment in the opinion of State. Supreme Court said article 16 (4)would take SC/ST within its purview.

Article-16 (4)(A)-Nothing in this article shall prevent the State from making any provision for reservation[in matters of promotion, with consequential seniority, to any class] or classes of posts in the services under the State in favour of Scheduled Castes and the Scheduled Tribes which in the opinion of State are not adequately represented in the services under the State.Consequential Seniorityallows reserved category candidates to retain seniority over general category peers. (Added by 77th CAA1995 and 85th CAA 2001)

Article-16 (4)(B)-Nothing in this article shall prevent the State from considering any unfilled vacancies of a year which are reserved for being filled up in that year in accordance with any provision for reservation made under clause (4) or clause (4A) as a separate class of vacancies to be filled up in any succeeding year or years and such class of vacancies shall not be considered together with the vacancies of the year in which they are being filled up for determining the ceiling of fifty per cent, reservation on total number of vacancies of that year. Unfilled reserved vacancies are to be treated as separate class and are not to be included under ceiling of 50 percent reservation of vacancies of the year(Added by 81st CAA 2000)

MANDAL COMMISSION-In December 1978, a commission was established by the President of India under the leadership of B.P. Mandal, as a follow-up to a similar commission in 1953 led by KakasahebKalelkar. The purpose of this commission was to investigate the living conditions of backward classes in India. Its primary objectives were to define the criteria for identifying socially and educationally backward classes and to recommend measures for their advancement. The commission's findings indicated that around 52% of India's population belonged to Other Backward Classes (OBCs) based on the 1931 census data. The commission developed 11 indicators to assess social, educational, and economic backwardness. In 1990-91, the VP Singh government introduced two significant provisions:

a. 27% reservation for OBCs and

b. 10% reservation for economically weaker sections.

Indira sawhney v/s UOI 1992 also called Mandal Case, Case challenged the reservation system, arguing that it should be based either on caste or economic class, not both- court held that 27 per cent reservation for OBCs in public jobs were constitutionally valid.The Supreme Court ruled in favour of caste-based reservation, striking down the government's notification regarding the 10% reservation for economically weaker sections.

Court also directed-

a. Court also held that ordinarily the reservation in the favour of Backward Classes shall not exceed 50percent of total seats
b. The concept of the "creamy layer" was introduced. It was established that individuals falling into the creamy layer would not be eligible for reservation benefits.
c. Caste by itself may constitute a Class (reverse earlier judgement)
d. Economic criteria by itself cannot identify a class as a backward unless the economic backwardness of the class is on account of its social backwardness
e. Court also held that reservation benefit can be extended for the backward classes only at entry stage I e at the time of recruitment and not in promotion thus reservation for SC and ST in the matter of promotion was held unconstitutional however parliament responded by introducing Article 16 (4 A) through 77thCAA 1995 which provides for reservation in promotion for SC and ST

SC in NAGARAJ V/S UOI case 2006-Courtupheld the constitutional validity of A 16(4A) subject to the fulfilment of the following conditions –

Doctrine of Proof of compelling reason-

a) SC and ST should be socially and educationally backward (state should have quantifiable data to show backwardness of the class)
b) Not adequately represented in public employment
c) Such reservation should not affect the overall efficiency in the administration

Jarnail Singh v. LachhmiNarain Gupta Case (2018) – Supreme Court held that reservation in promotions does not require the state to collect quantifiable data on the 'backwardness' of the SC and ST but retain other 2 points of doctrine.

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AFSPA AND UAPA

Why in news- Government impose AFSPA in 4 north eastern states- Assam, Arunachal Pardesh, Manipur and Nagaland

Background

1. The original Armed Forces (Special Powers) Act (AFSPA) was introduced during World War II in response to challenges faced by the British, particularly from Indian Nationalists.
2. After independence, Indian leaders chose to retain and modify this framework to address internal security issues.
3. In 1958, the Armed Forces (Assam and Manipur) Special Powers Ordinance was enacted, later replaced by the Armed Forces (Special Powers) Act

4. Initially, AFSPA was applied to the Naga Hills and nearby insurgency-affected areas to grant the military the authority to restore order in "disturbed areas." Over time, AFSPA has been extended to other states dealing with similar challenges, including Manipur, Assam, and parts of Jammu and Kashmir.

Controversial provisions of AFSPA

1. Section 3 allows the central government to declare any area as "disturbed" without the consent of the concerned state government, effectively centralizing control over the decision-making process and raising questions about the autonomy of state governments.
2. Section 4 grants authorized officers the authority to use lethal force against individuals, even if it results in death, under the justification of maintaining public order. Additionally, it gives these officers the power to arrest individuals without a warrant, and to seize or search any premises without prior authorization, which critics argue can lead to abuse of power and violations of personal freedoms.
3. Section 6 further exacerbates concerns by requiring prior permission from the central government for the prosecution of security personnel involved in any wrongdoing. This provision shields the armed forces from accountability and contributes to a climate of impunity, where abuses may go unpunished, despite the serious consequences of their actions. These provisions have sparked ongoing debates regarding the balance between national security and the protection of human rights in regions under AFSPA.

KEY CONCERNS

1. **Impunity for Security Force**: One of the most contentious provisions of AFSPA is its grant of legal immunity to armed forces personnel for actions taken under its authority. The Act requires prior approval from the central government before any prosecution can be initiated against security forces. This provision has fostered a culture of impunity, where military personnel are rarely held accountable for their actions. This lack of accountability has contributed to growing public distrust and resentment towards the armed forces, particularly in the affected regions
2. **Human Rights Violations**: AFSPA has been linked to numerous human rights abuses, including extrajudicial killings, torture, and enforced disappearances. This has raised significant concerns about the Act enabling impunity for such actions, given the legal protections it offers to the armed forces.
3. **Excessive Use of Force:** AFSPA provides security forces with broad powers to use lethal force against individuals suspected of being involved in unlawful activities. Critics argue that this provision often leads to excessive and disproportionate use of force, particularly in tense regions. As a result, there have been numerous incidents of civilian casualties, which only escalate violence and instability in the affected areas.
4. **Lack of Accountability and Oversight**: A significant issue with AFSPA is the lack of effective mechanisms for holding the armed forces accountable for human rights violations. Despite multiple committees recommending reforms or the repeal of the Act, the central government has largely ignored these calls. The failure to establish proper oversight has created a cycle of abuse, where violations of human rights continue without adequate investigation or punishment.

UNLAWFUL ACTIVITIES PREVENTION ACT-:

The Act was enacted to enhance the prevention of specific unlawful activities committed by individuals or organizations and to address terrorist activities, along with related matters.

It defines the following actions by individuals, groups, or organizations as unlawful:

a) Any action that asserts control or authority over any part of Indian territory.
b) Any action that threatens the sovereignty or integrity of India.

Applicability of the Law- The UAPA applies to both Indian nationals and foreign nationals and is enforceable across the entire territory of India. The law's provisions extend beyond Indian borders and include: - Indian citizens living abroad; - Individuals employed by the government, wherever they may be located; and - People aboard ships and aircrafts registered in India, regardless of their location.

Issues Related to the Unlawful Activities (Prevention) Act (UAPA)

a) The UAPA allows for an extended period of detention, with the duration of arrest potentially increasing over time. During this period, normal bail cannot be granted, and even regular bail is subject to the judge's satisfaction, making it more difficult for the accused to secure release before trial.
b) In addition to the strict bail provisions, the Act also establishes longer pre-trial processes, extended trial periods, and lengthier sentences for those convicted of serious terrorism-related offenses.

Amendments

1. Unlawful Activities (Prevention) Amendment Act, 2004 -This amendment introduced the term "terrorist act" into the list of offenses under the UAPA, allowing the government to ban organizations involved in terrorism. Before this amendment, the law primarily addressed activities related to secession or the cession of territory. After the 2004 amendment, terrorism was explicitly recognized as a primary offense under the Act.

2. Unlawful Activities (Prevention) Amendment Act, 2019

a) The 2019 amendment gave the Central Government the authority to designate individuals as terrorists based on specific grounds, broadening the scope of the law to target individuals involved in terrorism, not just organizations.
b) It also granted the Director-General of the National Investigation Agency (NIA) the power to approve the seizure or attachment of property in cases under investigation by the agency.
c) amendment extended investigative powers to officers of the NIA holding the rank of Inspector or higher. Previously, only officers with the rank of Deputy Superintendent or Assistant Commissioner of Police had the authority to investigate terrorism-related cases.

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Detention under the National Security Act (NSA)

Context- The recent detention of Ladakh activist Sonam Wangchuk under the National Security Act (NSA, 1980), outlines the legal architecture of preventive detention in India

Facts & Timeline

- **September 25–26, 2025:** Protests in Leh demanding statehood and Sixth Schedule protections turned violent, resulting in fatalities and injuries. In the aftermath, Sonam Wangchuk was detained.
- **September 26, 2025:** Reports indicate Wangchuk was detained under the National Security Act (NSA).
- **Early October 2025:** Legal challenge filed by Wangchuk's wife; the Supreme Court listed the petition for hearing on 6 October 2025.

National Security Act (NSA), 1980 — Key Features

- **Nature and Purpose:** The NSA is a preventive detention law that empowers central and state governments to detain a person without formal charge to prevent them from acting in a way that threatens public order, security of the state, or key strategic interests. It is not a penal statute but a preventive measure.

- **Grounds for detention:** The Act allows detention where the government is satisfied that it is necessary to prevent the person from acting in a manner prejudicial to the maintenance of public order or the security of the State.
- **Period of detention:** The Act provides for initial detention orders and administrative review mechanisms; detained persons may be kept for extended periods subject to statutory safeguards (representation to the government, advisory board review).
- **Procedural safeguards under the Act:** detainee must be informed of the grounds of detention (subject to certain exemptions), may make a representation against the order, and an Advisory Board must examine the case within the time limit specified.
- **Legal remedies:** Writ jurisdiction under Article 32/226, representation to appropriate authority under NSA, and Advisory Board review are the principal legal procedures available to the detainee.

Article 22 of the Constitution

- **Scope:** Article 22 provides protections against arbitrary arrest and detention; it has two distinct parts — protections applicable to ordinary arrests and safeguards specific to preventive detention laws
- **Key safeguards (preventive detention):**
  - **Disclosure of grounds:** The detainee must be informed of the grounds of detention (subject to national security/other exemptions).
  - **Representation:** The detainee has the right to make a representation against the order of detention.
  - **Advisory Board review:** No person can be detained under a preventive detention law for more than three months unless an Advisory Board constituted under the law reports that there is sufficient cause for such detention.
  - **Judicial review:** While procedural aspects of preventive detention are amenable to judicial review, courts have historically shown deference to the satisfaction of the executive on preventive grounds; however, fundamental rights claims (Articles 14, 19, 21) are justiciable.

Link between NSA and Article 22 — Interaction & Procedure

- **Constitutional foundation:** Article 22 is the constitutional provision that places safeguards on preventive detention laws like the NSA; the NSA must operate within the limits and procedures envisaged by Article 22.
- **Disclosure & representation:** NSA detention orders must follow Article 22's requirement of disclosure of grounds and opportunity to make representation, though the Act and executive orders may invoke 'public interest' or security exceptions to withhold sensitive particulars.
- **Advisory Board:** The NSA triggers Article 22's Advisory Board mechanism — the Board must examine the grounds and report whether detention is justified;

Legal Issues & Constitutional Questions Raised by the Wangchuk Case

1. **Applicability & justification of NSA:** Whether the facts and available material could reasonably satisfy the statutory test for preventive detention under NSA — i.e., a real and imminent threat to public order or state security, not merely discomforting speech or political mobilisation.
2. **Disclosure & secrecy:** Whether the authorities properly disclosed sufficient grounds for detention to enable effective representation — or improperly relied on a broad claim of public interest to withhold material.

3. **Proportionality & necessity:** Whether preventive detention was a proportionate response to the alleged conduct, especially given non-custodial alternatives (restrictions, specific criminal prosecution) and Wangchuk's public profile as an activist.
4. **Advisory Board & timeline compliance:** Whether the Advisory Board has been constituted and has undertaken its review within constitutional time limits and whether the detention extends beyond the permissible period without required opinions.
5. **Political speech vs. public order:** Distinguishing between protected political expression and acts that genuinely threaten public order — an essential constitutional inquiry under Articles 14, 19 and 21.

Policy Considerations & Criticisms

- **Scope for misuse:** Preventive detention laws are frequently criticised for enabling executive overreach, politicised use against dissenters, and lack of transparency when grounds are withheld in the name of security.
- **Weak safeguards in practice:** Procedural safeguards (disclosure, representation, advisory board) may be undermined if secret material is not shared or advisory processes are delayed.
- **Chilling effect on dissent:** High-profile detentions of activists raise concerns about deterrence of legitimate political expression and protest in a democracy.
- **Need for accountability:** Calls for independent oversight, stronger parliamentary review, time-limits, and clearer statutory standards to reduce arbitrariness.

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PM SHRI in Kerala

What happened

- The Kerala government signed a Memorandum of Understanding (MoU) with the central government to join the PM SHRI scheme after months of reluctance.
- The state's General Education Minister V Sivankutty said that the decision was strategic — to secure pending central funds which were withheld because the state was not part of PM SHRI.
- The MoU signing does not mean the state is surrendering its curriculum or handing over autonomous control of education to the Centre, according to minister's statements.

Why it matters / issues

- **Funding:** Kerala had reportedly lost central assistance amounting to over RS 1,150 crore due to its earlier non-participation.
- **Curriculum and federal concerns:** Some parts of the political spectrum in Kerala (especially the coalition partner Communist Party of India (CPI)) opposed joining on ground that PM SHRI was linked to the National Education Policy (NEP) 2020 and might force certain changes in educational content or governance.
- **State's stand:** Kerala emphasised that its own strong curriculum and academic vision would stay intact and that the MoU signing was purely to secure infrastructure/quality improvement funds.

Background of the Issue

- The Pradhan Mantri Schools for Rising India (PM SHRI) Scheme was launched by the Union Ministry of Education in September 2022.

- **Objective:** To upgrade existing government schools into model schools reflecting the vision of the National Education Policy (NEP 2020).
- The scheme envisages the development of 14,500+ schools across India.
- **Funding pattern:**
  - **60:40** between Centre and State (for general states).
  - **90:10** for North-Eastern and Hill states.
  - **100% Central** for UTs without legislature.
- PM SHRI schools will serve as demonstration schools, showcasing NEP-aligned pedagogy, infrastructure, and holistic learning.

2. Kerala's Initial Opposition

- Kerala, ruled by the Left Democratic Front (LDF)**,** initially refused to sign the MoU with the Centre to implement PM SHRI.
- **Reasons cited:**
  1. The scheme was seen as linked to NEP 2020, which Kerala officially opposes, citing centralization and ideological concerns.
  2. The state argued that education is a concurrent subject, and the Centre should not impose its policies without state concurrence.
  3. Concerns that PM SHRI would influence curriculum content, potentially affecting Kerala's own state syllabus.
  4. Fear of "dual control" — with schools answering to both state and central authorities.

The Recent Development (October 2025)

- In October 2025, the Kerala Government signed the MoU with the Union Ministry of Education, thereby joining the PM SHRI scheme**.**
- **Announcement:** Made by Kerala's General Education Minister V. Sivankutty.
- **Rationale:** To access central funds that had been withheld due to non-participation in the scheme.
- According to Kerala officials, the state had lost central grants worth over ₹1,150 crore over the last two years.
- The state clarified that signing the MoU was a "strategic administrative move"**,** not a shift in educational policy alignment.

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Civil Registration System Report

What is this report?

- The report is compiled by the Office of the Registrar General & Census Commissioner, India (ORGI) under the Ministry of Home Affairs.
- It uses data from the Civil Registration System (CRS) — the system which registers births and deaths — and presents aggregate national-level statistics of births, deaths, registration coverage etc.

- The recent version provides data for year 2023 (though registration may lag) and gives some of the latest publicly available numbers.

Key Highlights of the CRS Report 2023

- Registered births in India in 2023: 2.52 crore (~25.2 million). That is about 2.32 lakh fewer than in 2022.
- **Registered deaths in 2023:** 86.6 lakh (~8.66 million). This is a marginal increase compared to 2022.
- Birth registration coverage (Level of Registration of Births) reached 98.4% in 2023.
- Institutional births comprised about 74.7% of registered births in 2023.

Trends & Observations

- The slight fall in births from 2022 to 2023 suggests a continuing decline in fertility and birth rates.
- The near-universal birth registration coverage (98.4%) is a strong sign that the CRS system is capturing births quite comprehensively.
- A marginal rise in deaths means mortality remains an important area—especially in the context of ageing, health transitions etc.
- Institutional births at 74.7% still leaves about 25% births outside institutional settings, indicating room for improvement in maternal/child health infrastructure.
- In commentary, the decline in births is cross-linked with reports of India's fertility rate falling below replacement level (~1.9 per woman) as per UN reports.

Significance

- **Data for policy**: Reliable data on births and deaths are crucial for planning health infrastructure, maternal/child welfare, pension schemes, social security etc.
- **CRS as governance tool**: A strong civil registration system indicates administrative capacity — for identity, rights (birth certificate), legal entitlements.
- **Demographic transition**: With births decreasing and deaths stable/increasing, India is moving deeper into demographic transition — this has consequences for workforce, ageing population, dependency ratio etc.
- **Link to SDGs**: For SDG 3 (good health and well-being) and SDG 16.9 (legal identity for all) the CRS metrics (registration & institutional births) are relevant.
- **Federal/state role**: Birth/death registration is a state subject but coordinated centrally — this report shows interplay of centre & states in data governance and standards.
- **Transparency & public accountability**: Public release of such reports allows civil society, academia, media to monitor government performance and hold it to account.

Concerns & Limitations

- **Lag in registration**: Even though coverage is high, there may be delays and under-registration in certain states/UTs or rural/tribal areas.
- **Quality of cause-of-death data**: While births and deaths get registered, accurate cause-of-death information remains weak in many places.

- **Registration vs occurrence**: The report deals with registered events — actual occurrences may differ (especially in remote areas).
- **State-wise disparities**: National averages mask the fact that some states/UTs lag behind in registration coverage or maternal/child health indicators.
- **Policy implementation gap**: Data may show improvement, but translating these into health outcomes and social welfare remains a challenge.

Implications for India's Future

- With lower births and high registration levels, focus will shift to ageing population**,** elder welfare**,** and health systems for non-communicable diseases**.**
- India may need to revisit social policies — e.g., pension reform, healthcare coverage, labour force participation of older cohorts.
- Improving cause-of-death registration will aid in tackling major health burdens (NCDs, injuries) more effectively.
- Strengthening CRS further (digital registration, real-time data, integration with Aadhaar etc.) will enhance governance and service delivery.

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AkkaiPadmashali

1. Context & What Happened

- AkkaiPadmashali, a transgender rights activist from Karnataka, has been appointed as a member of a Supreme Court-appointed committee tasked with drafting an Equal Opportunity Policy for transgender persons.
- She is noted as the first transgender person from Karnataka to join such a committee of the Supreme Court.
- The committee was constituted in October 2025.
- The bench of the SC directed that this panel look into equal opportunities**,** inclusive medical care**,** and protection for gender non-conforming persons**.**

2. Legal / Policy Background

- The landmark judgment NALSA v. Union of India (2014) recognised transgender persons as a "third gender" and affirmed their constitutional rights to dignity, equality, and self-identification.
- Post that, the Transgender Persons (Protection of Rights) Act, 2019 came into force with the aim of protecting rights of transgender persons — although implementation remains a challenge.
- The Supreme Court's creation of this committee signals an **institutional step** toward operationalising rights in education, employment, healthcare and other domains for transgender persons.

3. Composition & Mandate of the Committee

- The committee is chaired by Justice Asha Menon (retired High Court Judge).
- **Key mandate:**
    - Drafting an "Equal Opportunity Policy" for transgender persons (to ensure access and protection in employment, education, health, etc.).
    - Ensuring inclusive medical care and safeguards for gender non-conforming persons.

- Reviewing how the rights recognised in the NALSA judgment and subsequent legislation are being implemented.

4. Significance of the Appointment

- **Representation / Inclusion**: Having a transgender person from Karnataka in the committee is a strong signal of inclusion and participative policymaking. It moves beyond tokenism — from being a subject of policy to being part of policy-making.
- **Federal / State dimension**: Activist is from Karnataka — this indicates national reach of the policy initiative (not just Delhi/NCR). Also shows how issues of transgender rights transcend states and require national interface.
- **Governance dimension**: This step enhances accountability of policy implementation — when persons from the community are on such panels, monitoring and feedback loops can be stronger.
- **Symbolic / Normative**: It sends an important message to educational institutions, workplaces, healthcare, that transgender persons have a stake and a voice in shaping policies.
- **Precedent setting**: This committee could set standards/templates for states, institutions to follow, thus operationalising constitutional and statutory rights in a meaningful way.

5. Key Challenges & Governance Implications

- **Implementation gap**: Policies and laws exist, but actual real-life access to education, employment, healthcare for transgender persons remains weak. The committee will need to address structural issues.
- **Intersectionality**: Transgender persons face overlapping disadvantages (gender identity + caste + class + region). The policy must account for this complexity.
- **State & institutional cooperation**: The committee's recommendations will require coordination across many departments—health, education, labour, social welfare—both at Centre and in states like Karnataka.
- **Data & monitoring**: Reliable data on transgender persons, their outcomes in employment/education/health is limited. Good governance will require better data collection and monitoring.
- **Cultural & attitudinal barriers**: Equality of opportunity is not just legal but social. Workplace bias, societal stigma, lack of sensitisation will still hamper access.
- **Resource allocation**: Ensuring that equal opportunity is not just declarative but backed by budget, infrastructure, training, and institutional mechanisms.

Implications for Karnataka & Wider India

- **For Karnataka:** Having an activist from the state like Akkai means local issues of Karnataka's transgender community may gain national visibility and consideration in shaping the policy.
- **For India:** This marks a step toward fulfilling the promise of NALSA (2014) and the Transgender Persons Act (2019) by moving into the realm of policy-norms and operational mechanisms (jobs, medical care, inclusion).
- **For educational/health/employment sectors:** Institutions will increasingly need to align with expected standards for inclusive practices. The committee's output may become benchmark for institutional reforms.
- **For policymaking:** The exercise could serve as a model for inclusion of marginalised groups in policymaking committees — moving from policy for them to policy with them.

Income Tax Appellate Tribunal (ITAT) of India

1. Background & Establishment

- The ITAT was originally constituted on 25 January 1941 under the then Indian Income-tax Act, 1922.
- Under the current law (Income-tax Act, 1961), section 252 empowers the Central Government to constitute the Tribunal.
- It is a quasi-judicial body specialised in "direct taxes" appeals (i.e., income tax and allied matters).

2. Structure & Jurisdiction

Structure

- The Tribunal is headquartered in Mumbai with multiple benches across India.
- **As of latest data:** 63 Bench-units (covering many zones/cities) with sanctioned strength of around 126 members including the President and Vice-Presidents.
- Each Bench typically consists of one Judicial Member and one Accountant Member. In suitable cases a Special Bench of 3+ members may be formed.

Jurisdiction

- It hears second appeals against orders under the Income-tax Act, after the first appellate body (which is usually the Commissioner of Income Tax (Appeals)).
- Its decisions on facts are generally final. Appeals to the High Court are permissible only if a substantial question of law is involved.
- Powers cover appeals by taxpayers and by the tax department (in certain cases) from orders passed by authorities under the Act.

3. Powers & Functions

- The ITAT has power to regulate its own procedure (under the ITAT Rules, 1963) and to constitute Benches, set sittings, etc.
- Key functions include:
    - Hearing appeals against assessment orders, penalty orders, etc.
    - Power of remand (sending a case back to the assessing authority) in appropriate cases.
    - Power to rectify or recall its orders in certain circumstances.
- It serves as a mechanism to relieve the High Courts of a large volume of direct tax disputes, thus contributing to judicial efficiency.

4. Significance

- **Specialised tribunal model**: The ITAT is among the first experiments in India of tribunalisation—separating specialised adjudication (tax) from the general court system. This has implications for administrative justice.
- **Access to justice for taxpayers**: It provides a dedicated forum for tax disputes, potentially quicker and focused than general courts.
- **Legal-policy interface**: Its judgments help shape tax jurisprudence—which in turn affects fiscal policy, revenue administration and taxpayer behaviour.
- **Federal dimension**: Although established by the Centre, the Benches are spread across states, and the Tribunal operates under the regional High Court jurisdiction for legal questions.

- **Rule of law & accountability**: Being a quasi-judicial body, it ensures tax authorities' decisions are subject to independent review, which strengthens the fairness of tax administration.

5. Challenges & Issues

- **Pendency and backlog**: Like many tribunals, ITAT faces high volumes of appeals which delay finality.
- **Quality of adjudication**: With expansion of Benches and complexity of tax matters (especially international taxation, transfer pricing, etc.), maintaining uniform quality is a challenge.
- **Tenure & appointments**: The process of selecting members, length of tenure, independence can become points of concern (appointed late, or near end of career) which affects effectiveness.
- **Coordination with revenue administration**: Tax policy changes, assessment practices, technological adoption all affect the work of ITAT; any gap between administration and appellate forum can affect justice delivery.
- **Awareness & access**: Taxpayers (especially smaller ones) may still lack awareness of rights to appeal; costs & complexity may restrict effective usage.

6. Recent Developments & Case Illustrations (2025)

- A recent order: The Chennai Bench of ITAT restored an appeal for fresh adjudication because a legal ground (on reopening of assessment) was not raised before the lower authority.
- In another case, the Delhi Bench of ITAT ruled in favour of a taxpayer in an ancestral land-sale dispute (~rs 8 crore) clarifying classification of HUF property versus individual.
- These illustrate: (i) the relevance of procedure and rights of appellant; (ii) how substantive tax law issues (capital gains, property classification) are adjudicated by ITAT.

7. Reforms & Way Forward

- **Digitisation & e-hearing**: Given large caseloads, expanding electronic filing, virtual hearings, case-management systems will enhance efficiency.
- **Uniformity and specialisation**: With tax matters becoming increasingly technical (BEPS, international tax, digital economy) creating specialised benches or modules within ITAT may help.
- **Capacity building**: Training for members, improving research support, having better reporting and jurisprudence databases will strengthen quality.
- **Strengthening incentives for timely disposal**: Monitoring disposal metrics, peer benchmarking of benches may help reduce delays.
- **Enhancing taxpayer awareness & support**: Outreach to small taxpayers, simplifying procedures, reducing costs of appeal will improve access to justice.
- **Linking with tax-policy reforms**: As tax laws evolve (for example new Direct Tax Act 2025 proposed) ITAT will need to adapt its procedures, backlog clearance and jurisdiction.

Doctrine of Lis Pendens

1. Meaning & Legal Basis

- "Lis pendens" is Latin for "suit pending". The doctrine means that when a suit is pending in a competent court in which any right to immovable property is directly and specifically in question, any transfer of that property (by a party to the suit) during the pendency is subject to the outcome of the suit.

- In India, the doctrine is embodied in Section 52 of the Transfer of Property Act, 1882 (TP Act). The key portion:

  "During the pendency in any Court … of any suit or proceeding … in which any right to immovable property is directly and specifically in question, the property cannot be transferred … so as to affect the rights of any other party thereto under any decree or order which may be made therein…"

2. Conditions for Applicability

For the doctrine to apply, the following conditions are typically required:

1. A suit or proceeding must be pending in a court of competent jurisdiction.
2. The suit should directly and specifically involve a right to immovable property.
3. The property in question must be identifiable and the transfer must affect the rights of a party to the suit.
4. The suit must not be collusive (i.e., cannot be a sham litigation used to defeat the doctrine).

3. Effects of the Doctrine

- A transfer of immovable property made by a party to a suit when the suit is pending does not void the transfer but makes it subject to the outcome of the suit. In other words, the transferee will take subject to whatever the court decides.
- A key implication: even a purchaser for value without notice may get bound by the outcome of the pending suit if the doctrine applies. The knowledge or not of the purchaser typically does not protect them once the doctrine is triggered.

4. Recent Development & Case Law

- The Delhi High Court (Division Bench of Justices Anil Kshetarpal and Harish Vaidyanathan Shankar) held that courts have power to exempt a property from the rigours of Section 52/Doctrine of Lis Pendens in appropriate cases — especially to protect genuine property owners from vexatious suits or speculative claims.
- In the case Earthz Urban Spaces Pvt. Ltd. v. RavinderMunshi (2025) the Court found that the suit foundation was "tenuous", majorly based on an unproved oral agreement, and thus exempted the property from the doctrine's operation, allowing the respondent to deal with the property. The Court imposed costs of RS 5 lakh on the appellant.

5. Significance

- **Protection of litigant's rights**: The doctrine helps protect the rights of a plaintiff or litigant by preventing parties to a suit from alienating or altering the property in dispute, thereby defeating the purpose of the suit.
- **Stability in property transactions**: It signals to subsequent purchasers that a transaction may carry risk if the property is subject to pending litigation.
- **Judicial efficiency & fairness**: By making the transferee subject to the outcome of the suit, it preserves integrity of judicial outcomes.
- **Real-estate regulation & market protection**: In the recent DHC ruling, the court noted that the doctrine should not be misused by speculators or land-grabbers to clutter the market or harass genuine owners.

- **Link to rule of law and access to justice**: It balances the rights of a property owner/transferee versus rights of litigants; governance frameworks must ensure property rights are actionable, yet litigation cannot be used to indefinitely freeze transactions.

6. Challenges

- **Misuse of doctrine**: As the recent DHC case indicates, there is risk of parties exploiting a pending suit simply to cloud titles or stall property transactions. Courts must guard against harassment.
- **What constitutes "pendency"**: There has been debate about when doctrine kicks in (institution of suit vs notice vs registration). The Supreme Court held institution of petition suffices.
- **Applicability outside TP Act**: Where TP Act does not strictly apply (e.g., non-transfer cases, or certain unique proceedings), whether doctrine still applies is a jurisprudential question — courts have said yes if principle of equity demands it.
- **Exemption/relief to genuine owner**: The DHC ruling shows courts recognizing that doctrine should not unduly freeze property of a bona-fide party; there must be mechanism for relief.
- **State law/regional variations**: Since property law involves both central and state spheres, variations and local enactments may affect how doctrine is applied practically.
- **Impact on property market & third-party purchasers**: The doctrine creates risk for buyers; balancing protection of third-party buyers and rights of litigants is tricky.

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UNESCO Global Education Monitoring (GEM) Report 2024-25

1. What is the GEM Report?

- UNESCO's Global Education Monitoring (GEM) Report is an annual flagship publication that tracks progress towards the education targets of the Sustainable Development Goal 4 (SDG 4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all").
- The report generally has two components:
    1. Monitoring international education targets (access, learning outcomes, equity, etc.).
    2. A thematic focus: For 2024-25 the theme is "leadership in education" — how educational leadership (school heads, middle-leaders, system managers) influences learning and transformation.

2. Key Findings (Global) from the Report

- Around **272 million children** worldwide are out of school — this is a sharp increase (about 21 million more than previous estimates).
    - Of these: ~11% of primary age children (~78 million) are out of school; ~15% of lower secondary (~64 million); ~31% of upper secondary age youth (~130 million).
- **Language barriers**: Around 40% of the global population lacks access to education in a language they speak and understand. This figure is much higher in low- and middle-income countries.
- **Gender gaps & leadership**:
    - Globally, boys lag behind girls in reading proficiency: On average, 87 boys meet minimum reading level for every 100 girls. In middle-income countries, this drops to 72 boys per 100 girls.

- Women dominate teaching in many countries but lag severely in school leadership and higher academic leadership.

- **Impact of climate change & environment**: The report (and related UNESCO data) highlight that climate-related stressors (extreme heat, natural disasters) may cost children up to 1.5 years of schooling globally.
- **School leadership matters**: The thematic component emphasises that leadership within schools (principals, heads) as well as system leadership (district/state) is the second most important factor after teachers for learning outcomes. E.g., in a survey of principals in 14 middle-income countries, 68% said they spent most of their time on routine management, not instructional leadership.

Key Findings for India

- Despite near-universal primary enrolment, India faces persistent challenges in learning outcomes and school leadership.
- **Specifics:**
  - The report notes that Indian states often lack formal training for principals (even though the National Education Policy 2020 mandates ~50 hours of professional development annually).
  - Gender parity is improving in enrolment, but outcomes remain uneven; women are under-represented in higher academic leadership in India (for example, only ~13% of Vice-Chancellors in central universities were women as of 2022).
- India is off-track on some SDG 4 targets: For instance, upper-secondary completion is projected at ~67%, but the out-of-school proportion for youth aged 15-17 is around 21%.

Key Findings-

- **Quality vs Quantity:** Enrolment has improved, but the report shows that achieving quality learning is now the major challenge. This shifts focus from access to learning outcomes, teacher & leader capacity, school system management.
- **Equity & Inclusion:** The findings on gender gaps, language barriers, out-of-school youth emphasise that policy must go beyond access to ensure equitable outcomes. This ties into rights-based education governance.
- **Leadership & Institutional Capacity:** The thematic focus on education leadership highlights the role of middle management, state/district level reform, school heads — thus, governance reforms need to address capacity at various levels, not just infrastructure.
- **Language policy & federal/state role:** The barrier of instruction in unfamiliar languages underlines how state languages, regional policies, and national norms intersect — a federal governance dimension.
- **Impact of external factors:** Climate change, disasters, and social-economic barriers influencing education indicate cross-sector integration (education, environment, social welfare) is needed in policy.
- **Monitoring, accountability & data:** The report underscores need for robust data systems (on enrolment, attendance, learning outcomes, languages) which enable evidence-based governance and accountability of educational systems.

5. Issues & Challenges Highlighted by the Report

- Many children remain out of school even when enrolment is high — due to drop-outs, lack of transition to secondary level, or attendance/learning issues.
- **Learning crisis:** Some children attend school but do not gain foundational literacy/numeracy — in India this is a persistent concern.
- **Leadership deficits:** School principals often bogged down with administrative tasks; insufficient formal leadership training; lack of vision/planning in many schools.
- **Language of instruction:** For large populations, instruction is not in a language they know well — undermining comprehension and outcomes.
- **Data & measurement gaps:** National systems sometimes rely on limited sources; global modelling attempts to estimate missing data.
- **Vulnerability to external shocks:** Climate change, disaster risk, pandemics, socio-economic shocks can reverse education gains (children missing years of schooling) — the report warns about these risks.
- Transition to upper secondary and tertiary education remains weak in many countries including India; completion rates are below desired levels.
- **Women's leadership:** Despite high representation in teaching ranks, leadership roles remain skewed; systemic barriers remain.

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20-year milestone of the Right to Information Act, 2005 (RTI) in India

What is the RTI Act & Why It Matters

- The RTI Act was enacted in 2005, coming into force on 12 October 2005**,** allowing citizens to seek information from public authorities, promoting transparency and accountability.
- It provides:
    - A right to information (subject to certain exemptions) from "public authorities".
    - A three-tier structure: Public Information Officers (PIOs) at the department level, First Appellate Authorities, and Central and State Information Commissions (CIC and SICs) as the oversight bodies.
- Key provisions include mandatory disclosure by public authorities (Section 4), time-bound responses (30 days / 48 hours in life/liberty cases), and penalty provisions (up to RS 25,000) for non-compliance by PIOs.
- The RTI has been a foundational law for participatory democracy, citizen empowerment and accountability of government.

Key Achievements Over 20 Years

- Over the years, RTI has enabled ordinary citizens to question governmental decisions, expose corruption, access entitlements and monitor scheme implementation.
- Major scandals and public interest disclosures have been made possible because of RTI applications.
- Many public authorities have institutionalised basic disclosure (though unevenly) and citizens' awareness of the right has grown significantly.

Recent Developments— "RTI at 20"

Vacancies, backlogs and ineffective institutions

- According to a recent report, 18 out of the 29 Information Commissions (CIC + SICs) have waiting periods of over one year for appeals/complaints under the RTI Act.
- Some commissions are functioning with very reduced strength or even defunct. For example, Jharkhand's SIC has been non-functional for over five years. Vacancies in major commissions remain high.
- **Example:** The Central Information Commission (CIC) reportedly had eight vacant commissioner positions and operated with only three for an extended period.
- **The backlog is huge:** As of June 30, 2024, the 29 commissions had 405,509 appeals/complaints pending, and many commissions would take multiple years to clear one case at current pace.

Concerns over weakening of the law

- Critics argue the law is being hollowed out**:** Through amendments and policy shifts, autonomy of Information Commissions has been reduced. For instance, the Digital Personal Data Protection Act, 2023 (DPDP Act) introduced the concept of "personal data" blanket-exemption which may hamper disclosures under RTI.
- Political parties and transparency activists have raised concerns: On its 20th anniversary, the Indian National Congress alleged the government is "systematically killing" the RTI, turning key posts vacant and treating RTI as "Right to Intimidate".

Commemorative & Civil Society Actions

- An "RTI Mela" (fair) was organized in Narwakhēda village (Rajasthan) to mark 20 years of RTI, highlight the rights movement's history, and raise concerns over current threats to the law.
- Op-eds and analyses in major media reflect on both the success and the "promise unfulfilled" nature of the RTI after two decades.

Analysis: What Has Worked & What Has Not

What has worked:

- Empowerment of citizens and civil society to access information that was hitherto opaque.
- The institutional framework of commissions has provided an appellate mechanism beyond department-level hearings.
- Awareness around transparency and rights has significantly increased.

What has not worked / major challenges:

- **Institutional weakening:** shortcomings in appointment, autonomy, capacity of Information Commissions.
- **Pendency/backlog:** Delays of 1+ years critically undermine the notion of "time-bound" information access.
- **Non-imposition of penalties:** Though the law authorises fines, many PIOs/authorities are rarely penalised.
- **Legal dilution:** Amendments (2019), new data protection legislation (2023) have introduced ambiguity/exemptions that may reduce the effectiveness of RTI.

- **Implementation and scope:** Many public authorities are still not transparent; proactive disclosure remains patchy; awareness among marginalised groups is uneven.

Significance

- The RTI Act is a vital instrument of accountability in the governance ecosystem — holding executive bodies, public authorities, and service delivery institutions to account.
- **It strengthens participative democracy**: citizens are not just recipients of services but active monitors and stakeholders.
- The functioning (or dysfunction) of Information Commissions is critical for the rule of law**,** rights protection, and administrative justice**.**
- The tension between privacy/data protection **and** right to information disclosure has emerged as a key policy dilemma — relevant for constitutional rights (Art 19(1)(a) "freedom of speech and expression" including right to information) and balancing competing rights.
- The RTI regime intersects with federalism: States have their own SICs; thus state governments play a key role in transparency in local governance.

Issues & Way Forward

Issues to address:

- Filling up vacancies in Information Commissions promptly.
- Strengthening institutional autonomy — ensuring commissioners have fixed tenure, salary parity, independent resources.
- Ensuring proactive disclosure by public authorities as envisaged in Section 4, reducing dependency on RTI applications.
- Reducing backlogs, enhancing efficiency of hearings (e-filing, virtual hearings, timeline monitoring).
- Revisiting exemptions under Section 8 and conflicts with DPDP Act to ensure transparency isn't undermined by data protection.
- Enhancing awareness among citizens (including marginalised groups) about RTI rights and appellate mechanisms.
- Improving monitoring and reporting: Annual reports of commissions, data on appeals disposed, penalties imposed.
- Addressing misuse of RTI applications (though misuse is less documented than non-use) and strengthening verification of malicious filings.

Way forward / suggestions:

1. **Legislative review**: Consider amendments to restore autonomy of commissions and clarify overlaps with data protection regime.
2. **Digital transformation:** Unified national portal for RTI applications, status tracking, dashboards, training for PIOs.
3. **Capacity building:** Trainings for PIOs, FAAs, commissioners; enabling them to handle increased complexity (e.g., data requests, privacy overlaps).
4. **Civil society partnership:** Leveraging NGOs, media to monitor implementation, highlight backlog issues, promote best practices.

5. **Focus on proactive disclosure:** Making routine information available reduces reliance on RTIs and eases burden on commissions.
6. **Periodic evaluation:** Independent audits/reports on performance of RTI regime (like the one by SatarkNagrikSangathan) to inform reforms.

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Digital Exams in India

1. Background & Why Digital Exams Are Under Discussion

- Traditionally, India's high-stakes examinations (school board exams, entrance tests like NEET-UG, etc.) have been paper-based with OMR sheets, printed question-papers, manual evaluation.
- However, classrooms and learning methods have become increasingly digital — with smart-boards, tablets/laptops, online learning platforms. An article notes: "for most students today, learning lives on screens but high-stakes exams have stayed stubbornly paper-based."
- Moreover, high incidence of paper-leaks, impersonation, question-paper theft have triggered reforms. A panel recommended a "DIGI-EXAM system" (digital exam platform) to curb impersonation and enhance security.
- The push for digital exams aligns with broader aims of the National Education Policy 2020 (NEP 2020), digital governance (Digital India) and making assessments more transparent, efficient and accessible. See analysis: "Digital examinations can replace outdated paper-based tests … saving trees, cutting costs, ensuring transparency."

2. Recent Developments in Digital Exams

- The entrance exam reforms panel (headed by former ISRO chief) recommended: digital question-papers, hybrid models, multi-stage testing, and secure centres in each district.
- For example, NEET-UG (national medical entrance exam) is likely to transition to computer-based test (CBT) mode; the education minister indicated this in 2024.
- Institutions are already experimenting: For instance, Pt. B.D. Sharma University of Health Sciences, Rohtak rolled out a digital evaluation system for BDS & paramedical exams to curb malpractice.

3. Key Benefits

Benefits:

- **Security & integrity**: Digital exams reduce paper-leaks, question-paper theft, impersonation (with biometric/ID verification, secure logins).
- **Efficiency**: Faster delivery, automated marking (where applicable), quicker results.
- **Access & flexibility**: Potential for remote or flexible examination venues, hybrid models for wider reach.
- **Cost-saving & sustainability**: Less paper use, less logistics, fewer physical test-centres. (See article on this:)
- **Transparency & fairness**: Digital logs, audit trails, more consistent evaluation.
- **Equity & access**: Shift to digital must consider the digital divide — students in remote/rural areas may lack devices or connectivity. The governance challenge is to ensure no one is left behind.

- **State-Centre role**: Exam bodies (like National Testing Agency – NTA) coordinate with states; infrastructure decisions (network, test centres) involve state governments. The reforms reflect federal governance interplay.
- **Data protection & privacy**: Digital exams will generate large amounts of student data, biometric and device logs — raising concerns around privacy, data security, and consent.
- **Accountability & standard-setting**: Digital models require robust policy, standard operating procedures, capacity-building of exam agencies and oversight bodies.
- **Policy linkages**: With NEP 2020 aiming for reforms in assessment, competencies, etc., the move to digital exams is part of system-wide governance transformation.

Key Challenges & Risks

- **Digital divide & infrastructure**: Students in rural/remote areas may lack stable internet/devices; power outages; logistical difficulties in computer-based test centres. Without addressing this, digital transition may increase inequality.
- **Technical glitches & reliability**: Platform failures, connectivity issues, system crashes may undermine credibility of exams.
- **Cheating/new modes of malpractice**: While paper-leaks reduce, new risks emerge (hacking, impersonation using devices, remote invigilation challenges). The panel's suggestions include secure test centres, mobile testing centres.
- **Evaluation consistency for non-objective papers**: For subjective responses (essay, long answer), shifting to digital evaluation or hybrid models raises issues of marking standards, annotation, device comfort for students.
- **Transition period management**: Switching from paper to digital requires change management — training, student practice, device labs, fallback for outages.
- **Cost & logistics**: Setting up digital test centres, secure infrastructure, devices, data security systems — initial investment may be high.
- **Privacy & consent issues**: Collecting biometrics / IDs / device logs may raise concerns, especially when students from minors and marginalised sections are involved.
- **Policy clarity & standardisation**: Need clear guidelines on modality (fully digital vs hybrid), accommodations for differently-abled candidates, fallback mechanisms for disruption.

Case Studies / Examples

(a) SSC Digital Tests

- In 2025, the Staff Selection Commission (SSC) replaced paper exams with digital CBTs, halving recruitment time.
- Reduced corruption, improved real-time monitoring.

(b) NTA Transition Plan

- NTA to gradually shift NEET-UG and UGC-NET to CBT by 2026 with pilot tests in metro and Tier-2 cities.
- **Aims:** zero paper leak, instant results, environmentally sustainable exams.

(c) University-Level Initiatives

- Rohtak Health University implemented digital evaluation (Oct 2025).

- Objective: eliminate answer-sheet tampering and result manipulation.

9. Way Forward

1. **Infrastructure First**
   - Establish District Digital Exam Centres (DDEC) with power backup, high-speed internet, CCTV.
   - Integrate with BharatNet and PM Gati Shakti networks.
2. **Pilot Implementation**
   - Begin hybrid models before full migration.
   - Conduct mock CBTs for rural students to build confidence.
3. **Digital Inclusion Policies**
   - Subsidised access to computer labs in government schools.
   - Mobile digital vans for remote exam access.
4. **Legal & Regulatory Framework**
   - Formulate a "National Digital Assessment Policy" under Ministry of Education.
   - Ensure alignment with Digital Personal Data Protection Act, 2023.
5. **Training & Capacity Building**
   - Continuous digital literacy training for invigilators, teachers, students.
   - Include "Digital Exam Readiness" modules in teacher training programmes.
6. **Accessibility & Inclusivity**
   - Develop adaptive exam tools: voice-enabled, screen-readers, adjustable font and color settings.
7. **Grievance Redressal**
   - Quick, transparent, tech-enabled system to resolve disputes related to technical failures.

10. Conclusion

- Digital exams represent a paradigm shift in India's examination governance — from paper-heavy, corruption-prone systems to transparent, efficient, and environment-friendly models.
- However, the transition must be inclusive, data-secure, and technologically reliable.
- As India completes 25 years of NEP by 2040, digital examination systems could redefine trust and transparency in the public education landscape — if governance mechanisms keep pace with technology.

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The State of Social Justice in India

1. What is "Social Justice" in the Indian Context

Definition & Meaning

- Social justice refers to the equitable distribution of resources**,** opportunities and privileges within a society, and ensuring that historically disadvantaged groups (Scheduled Castes, Scheduled Tribes, Other Backward Classes, minorities, persons with disabilities, women, transgender persons) are able to access rights-and-opportunities on an equal footing.
- In the Indian constitutional and governance framework, social justice means going beyond formal equality (equal treatment) to substantive equality (equal outcomes & affirmative measures).
- Key legal/constitutional anchors:
    - Article 15(4) & (5) (Special provisions for SCs/STs and certain Backward Classes)
    - Article 16(4) (reservations in public employment for Backward Classes)
    - Article 46 (Promotion of educational and economic interests of SC, ST)
    - Directive Principles: Articles 38 (social order for welfare of people) and 39 (equal pay, equal work for women) etc.
- **Governance dimension:** affirmative schemes (reservations, welfare programmes), anti-discrimination laws, targeted interventions (scholarships, housing, land rights) all form the architecture of social justice in India.

2. Recent Landscape & Data: What's the State of Social Justice in India (2024-25)

Key sources & findings:

- The India Justice Report 2025 (IJR 2025) assesses four pillars (Police, Judiciary, Prisons, Legal Aid) across states, which is relevant to social justice in terms of access to justice, one of its core dimensions.
- The decision that the next Indian Census will include full caste details is a major step in data for social justice.

Notable findings:

- **In IJR 2025:** Delay in justice is a social-justice issue. It reports a backlog of over 5.2 crore pending cases in the judiciary; High Courts have ~30% vacancy rate.
- Police-population ratio is low — 155 personnel per 100,000 people (well below sanctioned strength) – affecting safe access, especially for marginalised people.
- **Prisons:** occupancy above capacity (118.5% average), with large number of under-trial inmates (77% of prison population) – reflecting inequality before the law.
- **On data:** Detailed caste data long missing; now Census announcement is positive for policy targeting.

Other recent developments:

- Some states (e.g., Karnataka) working on internal reservation within SCs (6-6-5 formula) and setting up monitoring commissions. (See news)
- **Gender budgeting:** In some states, the Comptroller and Auditor General of India (CAG) found that over rs 1,100 crore for gender-welfare schemes in one state remained unspent, indicating implementation gap.

3. Dimensions & Themes of Social Justice

(A) Access to Justice

- **Justice is integral to social justice:** If courts, police, prisons, legal aid are weak, disadvantaged groups suffer more.
- IJR demonstrates wide variation across states in institutional capacity (human resources, diversity, workload).
- For example, low representation of women & SC/ST in senior police ranks; legal aid programmes under-funded.

(B) Equality of Opportunity (Education, Employment, Livelihoods)

- Schemes for SC/ST/OBCs, minorities, persons with disabilities seek to enhance opportunity.
- Census with caste data will help refine these schemes and identify underserved groups.
- Implementation gaps remain (funds unspent, lack of data, regional disparities).

(C) Affirmative Action & Reservations

- Reservation policy is central part of social justice: competition for seats/jobs includes quota for SC/ST/OBC.
- Some states moving to sub-categorisation within SCs/STs (to ensure fair share among sub-groups). Karnataka's 6-6-5 matrix is example.
- Factor of "creamy layer", incremental quotas, and intersectional disadvantages (women + SC/ST + disability) complicates the scenario.

(D) Social Protection & Inclusion of Marginalised Groups

- Women, transgender persons, minorities, persons with disabilities, those affected by caste/tribe discrimination need targeted support.
- Social justice also implies removing barriers in structure: discrimination, social exclusion, stigma, violence.

(E) Data, Monitoring & Accountability

- Without disaggregated data (by caste, gender, region, disability), policies cannot be effectively targeted.
- Census move to include full caste details is significant.
- Justice system metrics (from IJR) provide one example of data for accountability.

4. Major Challenges & Gaps

- **Regional disparities**: Southern states often rank better on justice delivery & social indicators; many northern/central states lag. (IJR commentary)
- **Data gaps**: Lack of updated socio-economic data especially on castes beyond SC/ST, OBC subdivisions, and intersectional categories.
- **Fund utilisation**: Unspent funds under social justice/gender schemes point to weak implementation and institutional accountability (example in CAG report).
- **Access vs Outcome**: Even when access (education/enrolment) improves, outcomes (learning, employment, decent work) may not follow — especially for marginalised communities.
- **Reservation implementation issues**: Sub-categorisation, creamy layer thresholds, perceived reverse discrimination, and capacity of state machinery to implement complex quotas.

- **Justice delivery backlog & delays**: For disadvantaged persons, delayed justice is justice denied. Over-crowded prisons, large under-trial populations indicate systemic inequality.
- **Stigma & social exclusion**: Legal provisions alone cannot eliminate social stigma based on caste, gender, disability, or tribal status.
- **Intersectionality largely neglected**: Marginalisation is multi-dimensional (caste+gender+ disability+region) but policies often remain single-axis.
- **Federalism & state capacity**: Many social justice schemes are state-level in delivery; capacity of states varies widely; state politics influences how affirmative action gets implemented.

5. What Has Been Done & What Needs to Be Done

What has been done recently:

- Inclusion of caste data in upcoming Census.
- The India Justice Report providing cross-state benchmarking of justice delivery.
- States like Karnataka taking pro-active steps for internal reservation among SCs.
- The central Department of Social Justice & Empowerment publishing annual reports and making schemes available (e.g., scholarships, welfare funds).

What needs stronger action

1. **Data & Evidence Base**
    - Finalise caste enumeration in Census.
    - Collect data on social justice indicators (education/health/employment outcomes by caste/gender/disability).
    - Strengthen state-level databases and integrate scheme-performance data.
2. **Institutional Strengthening**
    - Increase staffing & infrastructure in judicial, police, prison, legal aid bodies (as flagged by IJR).
    - Strengthen state commissions for backward classes, minorities & persons with disabilities, and ensure they have real powers (not just advisory).
    - Ensure timely filling of vacancies, capacity building and diversification (women, SC/ST, OBC) in agencies.
3. **Effective Scheme Implementation**
    - Ensure funds for social justice/women/minorities are fully utilised and monitored (CAG findings highlight gap).
    - Decentralised delivery mechanisms so the benefits reach the last mile.
    - Create accountability frameworks — periodic audits, public dashboards, grievance redress mechanism.
4. **Refining Affirmative Action Policies**
    - Consider sub-categorisation within reserved categories (as Karnataka is doing) based on data.
    - Address intersectionality — e.g., seats for women in SC/ST/OBC categories, disabled persons in backward classes.
    - Review reservation in private sector, self-employment schemes and capacity building for marginalised entrepreneurs.

5. **Bridging Access-Outcome Gap**
    - Focus not only on enrolment but on learning outcomes, skill development and transition to decent work.
    - **Address non-material barriers:** social stigma, discrimination in workplace, invisibility of marginal groups.
    - **For justice:** reduce under-trial population, expedite cases, ensure legal aid for vulnerable.
6. **Social Inclusion & Attitudinal Change**
    - Social justice needs awareness, sensitisations and cultural change — campaigns against caste/gender discrimination, disability inclusion, transgender rights.
    - Encourage civil society, community-based organisations to partner in inclusion.
7. **Inter-sectoral Approach**
    - Social justice is cross-cutting — requires coordination across education, health, labour, housing, urban/rural development, welfare departments.
    - For example, ensuring adequate health & nutrition for ST/SC children, linking housing welfare with urban marginalised communities, linking labour rights with backward classes.
8. **Monitoring, Evaluation & Accountability**
    - Use benchmarking (like IJR) to track performance of states.
    - Publish state-wise dashboards for social justice indicators: scheme coverage, employment of SC/ST/OBC/minorities, conviction rates in crimes against marginalised groups, etc.
    - Strengthen grievance redress, legal aid access, monitoring of discrimination cases.

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Union Public Service Commission (UPSC) – 100-year milestone

1. Historical Evolution

- The UPSC began as the "Public Service Commission" on 1 October 1926, under the provisions of the Government of India Act, 1919 and following the recommendations of the Lee Commission (1924).
- In 1937, it became the "Federal Public Service Commission" under the Government of India Act, 1935.
- With the adoption of the Constitution of India on 26 January 1950, it was renamed the Union Public Service Commission and its constitutional basis lies in Articles 315-323.

2. Centenary Celebrations & Why It Matters

- UPSC will mark its centenary year from 1 October 2025 to 1 October 2026.
- The centenary is framed not just as a celebration of legacy but as an opportunity to reflect, reform, and chart a roadmap for the next century of public service recruitment.
- As part of the celebrations, UPSC plans to launch:
    - A new logo and tagline for the centenary year.
    - Outreach programs, seminars, exhibitions and public-engagement events to showcase the role of civil services and UPSC's contribution.

- **Significance:** The centenary is symbolic of meritocracy, transparency and institutional stability in India's administrative recruitment system.

3. UPSC: Role & Functions

- Constitutional body established under Part XIV of the Constitution. Responsible for recruitment to All India Services and Central Services, conducting examinations, interviews and advising the government.
- **Key functions:**
  - Conducting examinations for appointments.
  - Advising on matters of recruitment, promotions, transfers, disciplinary matters.
  - Ensuring fairness, merit, transparency in the selection process.
- Over its history, UPSC has conducted hundreds of examinations, selected thousands of civil servants who staff the administrative machinery of India.

4. Achievements & Legacy

- UPSC has remained a trusted institution for competitive recruitment, preserving the ideal of open, merit-based public service entry in a large and diverse democracy.
- **Institutional resilience:** It has adapted through colonial times, independence, constitutional transition and sustained democratic governance.
- **Contribution to governance:** The officers selected through UPSC form the backbone of India's bureaucracy, delivering public services, policy implementation and administration.

5. Challenges & Reform Agenda for Future

Challenges:

- **Continuous pressure of scale:** The number of aspirants grows, competition intensifies, requiring process reforms.
- **Inclusivity:** Ensuring outreach to diverse social groups, rural/remote aspirants, reducing disadvantage in access to preparation.
- **Process modernization:** Adopting new technologies, digital exam methods, remote access etc.
- **Transparency and public trust:** Maintaining high standards of integrity in examinations and selection.
- **Institutional agility:** Adapting to evolving administrative needs (specialised services, new domains) and enabling holistic public service talent.

Reforms Agenda (Centenary Year Focus):

- Launching new initiatives in recruitment and examination process (as announced).
- Enhancing outreach and employee participation in reform design (UPSC has invited suggestions from staff for centenary).

Planning for next-100-years: roadmap for strengthening public service, perhaps incorporating new dimensions (digital governance, service ethics, holistic evaluation).

PLACES IN NEWS

Bhagwan Mahaveer Wildlife Sanctuary

The Goa State Board for Wildlife has recently advised that the proposal seeking wildlife clearance for iron ore handling activities at Kalem railway station—located within the Bhagwan Mahaveer Wildlife Sanctuary and National Park—be referred to the National Board for Wildlife (NBWL) for further examination and approval.

About Bhagwan Mahaveer Wildlife Sanctuary

Situated along Goa's eastern frontier near the Mollem village, the Bhagwan Mahaveer Wildlife Sanctuary spans approximately 240 sq. km, of which around 170 sq. km forms the Mollem National Park, located at its core. Once known as the Mollem Game Sanctuary, it was formally declared a wildlife sanctuary in 1969 and subsequently renamed in honour of Lord Mahaveer.

Nestled in the foothills of the Western Ghats, the sanctuary is renowned for its scenic landmarks such as the Dudhsagar Waterfall, Devil's Canyon, Tambdi Surla Temple, and Tambdi Falls, making it both an ecological and cultural treasure.

The region's vegetation includes West Coast tropical evergreen, semi-evergreen, and moist deciduous forests, with teak, bamboo, cashew, and eucalyptus trees prominently covering the terrain.

Its diverse fauna features leopards, elephants, deer, and gaur (Indian bison), while the King Cobra—a species abundantly found here—remains one of its prime attractions. The sanctuary also supports nearly 200 species of birds, including the Malabar pied hornbill, great Indian hornbill, Indian black woodpecker, kingfishers, grey jungle fowl, shrikes, and paradise flycatchers, making it a haven for ornithologists and nature enthusiasts alike.

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Pulicat Lake

Recently, fishermen around Pulicat Lake have demanded a long-term solution to the problem of siltation, which is severely impacting the lake's ecology and local livelihoods. The increased deposition of silt and sediment has narrowed the lake's mouth connecting it to the Bay of Bengal, reducing water exchange and leading to declining fish catch and salinity imbalance.

About Pulicat Lake

- **Type:** Brackish water lagoon
- **Location:** Straddles the border of Andhra Pradesh and Tamil Nadu, along the southeast coast of India.
- **Significance:** It is India's second-largest brackish water lagoon after Chilika Lake (Odisha).
- **Separated From Sea By:** Sriharikota Island, which also hosts the Satish Dhawan Space Centre (SDSC-SHAR).

Hydrology

- **Fed By Rivers:**
    - Aarani River (southern tip)
    - Kalangi River (northwest)

- Man-made Connection: The Buckingham Canal, an inland navigation channel, passes through the lagoon, improving water circulation and connectivity.

Ecological Importance

- **Ramsar Site:** Designated a Ramsar Wetland of International Importance in 2002.
- **Ecosystem Type:** A coastal ecotone, supporting both marine and freshwater species.
- **Flora:** Over 130 plant species, including Walsura piscida, Manilkara elengi, Excoecaria agallocha, Spinifex littoreus, and Calamus viminalis.
- **Fauna:**
    - A vital wintering ground for migratory birds, such as greater flamingos, bar-tailed godwits, Eurasian curlews, oystercatchers, and sand plovers.
    - Home to mudskippers, seagrass beds, and oyster reefs, indicating a healthy coastal ecosystem.

Issues and Concerns

- **Siltation:** Continuous sedimentation is shrinking the lake's area and blocking tidal flow from the sea.
- **Salinity Imbalance:** Reduced inflow of seawater disrupts the lagoon's brackish nature, affecting fish breeding.
- **Livelihood Threats:** Thousands of local fishermen depend on the lake's fisheries, which are now in decline.
- **Climate Change & Urbanisation:** Rising sea levels, coastal erosion, and nearby urban pressure have worsened the lake's ecological stress.

Conservation and Way Forward

- **Dredging and Desilting:** Regular scientific dredging to restore the mouth's connectivity with the Bay of Bengal.
- **Integrated Coastal Zone Management (ICZM):** Adoption of nature-based solutions to maintain the lake's ecological balance.
- **Community Participation:** Empowering local fishing communities in lake management and conservation efforts.
- **Monitoring:** Enhanced hydrological and biodiversity monitoring through remote sensing and GIS tools.

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Baratang Island

Baratang Island – Latest Update

India's only mud volcano, located on Baratang Island in the Andaman and Nicobar Islands, has erupted again, attracting attention from both scientists and tourists. Such eruptions are natural geological phenomena caused by subsurface pressure, and they provide valuable insights into geological processes and coastal morphodynamics.

About Baratang Island

- **Location:** North and Middle Andaman district, approximately 150 km from Port Blair.

- **Tourism:** Famous for being India's only mud volcano, it is a key attraction for visitors to the Andaman Islands.
- **History of Eruptions:** Previously erupted in 2005, triggered by oceanic seismic shifts.
- **Indigenous Population:** Home to the Jarawa tribe, one of the island's indigenous communities.

Mud Volcano – Geological Overview

- **Definition:** Mud volcanoes, or mud domes, are geological formations where mud, water, and gases erupt from the subsurface to form cone-like structures, resembling traditional volcanoes but without molten lava.
- **Eruption Mechanism:** Pressure from subterranean gases (mainly methane, sometimes carbon dioxide or nitrogen) forces mud slurry and water to the surface.
- **Size Range:** Heights vary from 1–2 meters to 700 meters, and widths from 1–2 meters to 10 km.
- **Marine Mud Volcanoes:** Mud volcanoes can also exist on the sea floor, creating islands and banks that modify the coastline and seabed topography.

Significance

- **Scientific:** Provides insights into subsurface geology, gas emissions, and sediment dynamics.
- **Environmental:** Influences coastal topography, sometimes altering shorelines and ecosystems.
- **Tourism & Cultural:** Unique natural landmark, contributing to eco-tourism, and highlighting the coexistence of indigenous communities like the Jarawas with fragile ecosystems.

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Palau

Palau recently made headlines by hosting the world's first-ever live underwater interview, showcasing its unique marine environment and commitment to ocean conservation.

About Palau

- **Location:** Western Pacific Ocean
- **Archipelago:** ~300 islands, total land area 458 sq.km
- **Geographical Position:** Straddles the Northern and Eastern Hemispheres
- **Maritime Borders:**
    - **East:** Federated States of Micronesia
    - **South:** Indonesia
    - **West:** Philippines
    - **North:** International waters

Key Cities

- **Capital:** Ngerulmud (world's least populous capital city), located on Babeldaob Island
- **Largest City:** Koror, main commercial center

Language & Culture

- **Official Languages:** Palauan and English
- **Other Languages:** Japanese, Sonsorolese, Tobian

Political Status

- **Independence:** 1994, previously part of a UN trust territory administered by the US
- **Defense & Aid:** Palau receives financial aid and defense support from the US under the Compact of Free Association, allowing US military presence

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Blue Flag Certification

Recently, five beaches in Maharashtra have been awarded the prestigious international Blue Flag certification, marking a significant step forward in India's efforts toward sustainable coastal management.

About Blue Flag Certification

- **Nature of the Award:** The Blue Flag is a globally acclaimed eco-label granted by the Foundation for Environment Education (FEE), Denmark.
- **Origin:** The programme was launched in France in 1985 and extended beyond Europe in 2001.
- **Objective:** It seeks to promote sustainable tourism by ensuring that beaches, marinas, and tourism boats meet the highest standards of environmental management.

Key Features and Criteria

- The certification is awarded to beaches that fulfil 33 stringent parameters concerning cleanliness, environmental quality, safety, and aesthetic appeal.
- The programme emphasizes four main pillars:
    1. Water Quality
    2. Environmental Management
    3. Environmental Education
    4. Safety and Services

Mission of Blue Flag

The primary mission is to foster sustainability in tourism through environmental awareness, ecosystem conservation, and the adoption of responsible development practices along coastlines and water bodies.

Blue Flag Beaches in India

In addition to Maharashtra's newly certified beaches, other Indian beaches with Blue Flag status include:

- Shivrajpur (Gujarat)
- Ghoghla (Diu)
- Kasarkod and Padubidri (Karnataka)
- Kappad (Kerala)
- Rushikonda (Andhra Pradesh)
- Golden (Odisha)
- Radhanagar (Andaman & Nicobar Islands)
- Kovalam (Tamil Nadu)
- Eden (Puducherry)
- Minicoy Thundi and Kadmat (Lakshadweep)

Impatiens Rajibiana

A new species of balsam plant, named Impatiens rajibiana, has been recently discovered by a team from the Botanical Survey of India (BSI) in Arunachal Pradesh.

About Impatiens rajibiana

- **Discovery Site**: Found in the natural forests of Shergaon, located in the West Kameng district of Arunachal Pradesh.
- **Habitat:** The species thrives in moist, shaded forest environments at elevations above 2,000 metres.
- **Family:** Belongs to the Balsaminaceae family — plants commonly referred to as balsams.
- **Endemism:** Many members of this genus are endemic, occurring only in specific regions and often in small, isolated populations.
- **Diversity in India:** India hosts around 230 identified balsam species, including familiar ones such as Impatiens balsamina (commonly known as the garden balsam or touch-me-not).
- **Recent Discoveries:** Between 2013 and 2017, more than 16 new Impatiens species were recorded in Arunachal Pradesh, including Impatiens godfreyi and Impatiens sashinborthakurii.

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BIODIVERSITY

Painted Stork

After a four-year gap, a pair of painted storks has been sighted in Kaziranga National Park and Tiger Reserve (KNPTR), signaling a positive trend for wetland biodiversity in the region. This sighting underscores the importance of conserving freshwater wetlands and surrounding habitats for sustaining near-threatened species like the painted stork.

About Painted Stork (Mycteria leucocephala)

The painted stork is a large wading bird belonging to the stork family, notable for its striking appearance and ecological role in freshwater habitats.

Distribution

- Found across tropical Asia, ranging from the Indian Subcontinent to Southeast Asia, primarily south of the Himalayas.
- Non-migratory, with only short-distance movements in response to seasonal changes, breeding requirements, or food availability.

Habitat

- Prefers freshwater wetlands such as lakes, ponds, marshes, and riverbanks.
- Frequently visits irrigation canals and flooded agricultural fields, especially during the monsoon season, when rice paddies provide abundant foraging grounds.

Diet

- Carnivorous, feeding mainly on small fish.
- Also consumes crustaceans, amphibians, insects, and small reptiles.

Conservation Status

- Classified as Near Threatened (NT) on the IUCN Red List, mainly due to habitat loss, wetland degradation, and human disturbance.

Distinctive Features

- The only stork within the genus Mycteria to have a black pectoral band.
- Sexes are visually similar (no strong sexual dimorphism), though males are slightly larger than females.
- Long, slightly curved yellow-orange bill and striking pink tertial feathers during breeding season.

Significance of Recent Sighting

- Indicates restoration or improvement of wetland habitats in Kaziranga.
- Highlights the importance of wetland protection, water quality management, and prey availability for sustaining piscivorous bird populations.
- Serves as a flagship species for freshwater wetland conservation in India.

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Valmiki Tiger Reserve

A recent incident in Valmiki Tiger Reserve (VTR), West Champaran, Bihar, saw a tiger claiming another human life, highlighting ongoing human-wildlife conflict in the region. Forest authorities have intensified patrolling, monitoring, and community awareness programs to prevent such incidents and ensure both human safety and tiger conservation.

About Valmiki Tiger Reserve (VTR)

- **Location:** Northern part of West Champaran District, Bihar, along the India-Nepal border.
- **Area:** Approximately 880 sq. km, making it the only tiger reserve in Bihar.
- **Components:** Comprises Valmiki National Park and Valmiki Wildlife Sanctuary.

Geography & Connectivity

- Forms the easternmost limit of the Himalayan Terai forests in India.
- Surrounded by Royal Chitwan National Park (Nepal) to the north and the Gandak River to the west.
- Situated in the Gangetic Plains bio-geographic zone, featuring Bhabar and Terai tracts.
- The terrain includes porous soils with boulders and sand deposits and a deep water table.

Hydrology

The reserve is traversed by several rivers, including:

- Gandak, Pandai, Manor, Harha, Masan, and Bhapsa, which support the region's riverine forests and grasslands.

Vegetation and Flora

- Vegetation types: Tropical wet deciduous forests, grasslands, savannas, and riverine forests.
- Dominant species: Sal trees, along with teak, bamboo, semal, and khair.

Fauna

- **Big cats:** Tiger, leopard, fishing cat, and leopard cat.
- **Herbivores:** Sambar, hog deer, spotted deer, blackbuck, and gaur.
- **Other mammals:** Sloth bear, langur, rhesus monkey.
- The reserve supports a diverse ecosystem, making it crucial for tiger conservation and biodiversity in the Terai region.

Significance

- Serves as a linkage corridor between India's tiger habitats and Chitwan National Park in Nepal, ensuring genetic exchange and ecological continuity.
- The reserve is an important conservation site in the Terai Arc Landscape, supporting both large predators and prey populations.
- Ongoing human-wildlife conflicts underscore the need for community engagement, habitat management, and conflict mitigation strategies.

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Silent Valley National Park

In a recent odonate (dragonfly and damselfly) survey, six new species of these insects were discovered in the Silent Valley National Park, highlighting the park's exceptional biodiversity and ecological significance.

About Silent Valley National Park

- **Location:** Situated in the southwestern Nilgiri range of Kerala, Silent Valley represents one of India's most pristine stretches of tropical evergreen rainforest.
- **Significance:** It is among the last remaining undisturbed tropical rainforests in the country and serves as the core area of the Nilgiri Biosphere Reserve, which was inscribed as a UNESCO World Heritage Site in 2012.
- **Area:** Approximately 237.52 sq. km.
- **Altitude:** Ranges from 658 to 2,383 metres above sea level.
- **River System:** The Kunthipuzha River flows through the valley, enriching its lush ecosystems.

Origin of the Name

The park is called "Silent Valley" because of the absence of cicadas, the insects typically known for their loud buzzing in tropical forests.

Vegetation Types

Silent Valley hosts a rich mosaic of vegetation zones, including:

1. West Coast Tropical Evergreen Forest
2. Southern Sub-Tropical Broad-Leaved Hill Forest
3. Montane Wet Temperate Forest
4. High-altitude Grasslands

Floral Diversity

- Over 1,000 species of flowering plants
- 107 orchids, 100 ferns, 200 liverworts, 75 lichens, and 200 algae
- Presence of medicinal plants and tall Cullenia trees, a keystone species of the Western Ghats

Faunal Diversity

- **Flagship Species:** Lion-tailed macaque — an endangered and endemic primate of the Western Ghats
- **Other notable mammals:** Nilgiri langur, Malabar giant squirrel, tiger, leopard, elephant, and gaur (Indian bison)
- **Avifauna:** Home to over 200 bird species, including the Great Indian Hornbill, Nilgiri Wood Pigeon, and various eagles and owls

Recent Discovery

The identification of six new odonate species further underlines the ecological richness of the park and reinforces its status as a biodiversity hotspot of the Western Ghats.

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Blackbuck

The Chhattisgarh government has successfully reintroduced the blackbuck (Antilope cervicapra) into the state's forests as part of a five-year reintroduction programme, marking a major step in wildlife restoration and biodiversity conservation.

About Blackbuck

- **Scientific Name:** Antilope cervicapra
- **Type:** A species of antelope native to India and Nepal.
- **Distribution:** Found widely across Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and other parts of peninsular India.
- **State Animal:** Officially recognized as the state animal of Punjab, Haryana, and Andhra Pradesh.

Habitat and Ecology

- Prefers open grasslands, dry scrublands, and sparsely forested areas.
- Known for its adaptation to semi-arid and plain terrains, where it grazes primarily on grasses and herbs.

Physical Characteristics

- A medium-sized antelope, celebrated for its distinctive spiraling horns — seen only in males, which can reach up to 20 inches in length.
- Males: Dark brown or black upper body with white underparts and eye rings, creating a vivid contrast.
- Females and young males: Lighter, yellowish-brown in color.
- Possess excellent vision and can sprint at speeds up to 80 km/h (50 mph), making them among the fastest land animals in India.
- Usually live in herds of 5 to 50 individuals, showing strong gregarious and social behavior.

Conservation Status

- **IUCN Red List:** Least Concern
- Despite this, habitat fragmentation, poaching, and human encroachment remain key challenges in several regions.

Significance of the Chhattisgarh Reintroduction Project

- Aims to restore native species diversity and rebalance grassland ecosystems.
- Demonstrates successful wildlife management and the state's commitment to species recovery through long-term ecological planning.

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Gulf of Kutch

A recent report has highlighted that the long-term survival of dugongs (Dugong dugon) in the Gulf of Kutch and the Andaman & Nicobar Islands faces serious uncertainty due to habitat degradation, loss of seagrass beds, and human pressures such as industrial activities and fishing operations.

About Gulf of Kutch

- **Location:** An inlet of the Arabian Sea, situated along the west coast of India in the Jamnagar district of Gujarat.

- It divides Kutch from the Kathiawar Peninsula.
- **Length:** Approximately 99 miles (160 km) long.
- **Islands:** Surrounded by 32 islands, many of which are encircled by coral reefs.
- **Tidal Range:** The region experiences strong tidal currents (~2.5 m/s), making it one of India's best sites for tidal energy generation.
- **Area:** Around 7,300 sq km.
- **Marine Features:**
    - The southern shore hosts mangroves and living coral reefs.
    - The northern shore is lined with shoals and creeks, supporting large mangrove stretches.
    - The western end comprises marshlands and creeks, forming a complex wetland system.

Ecological Significance

- The Gulf of Kutch is among the most biologically productive and diverse coastal ecosystems on India's west coast.
- It provides vital habitats for marine species such as corals, seagrasses, mangroves, mollusks, and marine mammals like dugongs and dolphins.
- Marine National Park, Jamnagar, located on the southern shore, is India's first National Marine Park — established to protect the region's coral reefs, mangroves, and associated biodiversity.

About Dugong (Sea Cow)

- **Scientific Name:** Dugong dugon
- **Common Name:** Sea Cow
- **Unique Feature:** The only strictly herbivorous marine mammal found in India's waters.
- **Appearance:** Resembles a mix between a seal and a whale; known for its gentle nature and dependence on seagrass meadows.
- **Global Distribution:** Found across 37 Indo-Pacific countries, though populations have declined in many regions.
- **Indian Distribution:**
    - Andaman & Nicobar Islands
    - Gulf of Mannar
    - Palk Bay
    - Gulf of Kutch
- **Habitat:**
    - Inhabits shallow, warm coastal waters rich in seagrass beds, which serve as both feeding and breeding grounds.
    - Feeds primarily on seagrasses of genera Cymodocea, Halophila, Thalassia, and Halodule.
- **Lifespan:** Can live up to 70 years.

Conservation Status

- **IUCN Red List:** Vulnerable
- **Main Threats:**
    - Seagrass degradation due to dredging, pollution, and coastal development.

- Accidental entanglement in fishing nets.
- Boat collisions and marine pollution.

Conservation Implications

The report underscores the urgent need for:

- Protection of seagrass habitats through habitat mapping and restoration.
- Reduction in coastal industrial activities near critical dugong zones.
- Enhanced monitoring and community-based conservation programmes in the Gulf of Kutch.

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Rakchham–Chitkul Wildlife Sanctuary

Recently, an international bird-watching programme was organised in the Rakchham area of the Rakchham–Chitkul Wildlife Sanctuary, Himachal Pradesh. The event aimed to promote eco-tourism and conservation awareness among local communities and visitors, highlighting the region's rich avian biodiversity within the Western Himalayas.

About Rakchham–Chitkul Wildlife Sanctuary

- **Location:** Kinnaur district, Himachal Pradesh
- **Geographical Range:** Part of the Western Himalayan Range
- **Area:** Approximately 30.98 sq km
- **Altitude:** Between 3,200 m and 5,486 m above sea level
- **Climate:**
  - Situated in a dry zone, unlike most Himachali sanctuaries, hence it does not receive the monsoon rains.
  - Experiences cold, arid conditions similar to the trans-Himalayan ecosystem.
- **Terrain:** Characterised by snow-clad peaks, alpine meadows, and deep river valleys, making it a picturesque high-altitude sanctuary.

Connectivity and Trekking Routes

- The Lamkhanga Pass, a challenging and scenic trekking route, passes through this sanctuary.
- It connects Kinnaur (Himachal Pradesh) with Gangotri (Uttarakhand), crossing the Indo-Tibetan frontier zone.

Flora

The sanctuary supports alpine and sub-alpine vegetation, with several medicinal and aromatic plants.

- **Dominant species:**
  - Rhododendron
  - Quercus (Oak)
  - Pinus (Pine)
  - Various medicinal herbs adapted to cold climates

Fauna

Rakchham–Chitkul WLS hosts a rich diversity of Himalayan fauna, especially adapted to high-altitude, cold, and arid conditions.

- **Mammals:**
  - Snow Leopard (Panthera uncia)
  - Himalayan Black Bear (Ursus thibetanus)
  - Musk Deer (Moschus chrysogaster)
- **Avifauna (Birds):**
  - The sanctuary is a birdwatchers' haven, home to several migratory and resident species, including Himalayan Monal, Snow Partridge, Golden Eagle, and Chukar Partridge.

Ecological & Conservation Importance

- The sanctuary serves as an important ecological corridor between Himachal Pradesh and Uttarakhand.
- It plays a key role in the conservation of high-altitude Himalayan biodiversity, particularly endangered species like the Snow Leopard and Musk Deer.
- Promotes sustainable eco-tourism and community-based conservation initiatives.

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Konark–Balukhand Wildlife Sanctuary

Recently, reports from Odisha indicate that the population of spotted deer, once abundant in the Konark–Balukhand Wildlife Sanctuary, has declined significantly in recent years. Conservationists have raised concerns over possible causes such as habitat degradation, dwindling freshwater sources, and human disturbances in the region.

About Konark–Balukhand Wildlife Sanctuary

- **Location:** Puri district, Odisha
- **Notification Date:** 23 April 1984
- **Geographical Setting:**
  - Situated on a sandy coastal tract between Puri and Konark,
  - Lined with casuarina and cashew plantations that protect the coastline from erosion.
- **Rivers Flowing Through the Sanctuary:**
  - Nuanai River
  - Kusabhadra River
  - Kadua River
  - Prachi River
- **Area & Landscape:**
  - The sanctuary forms a narrow coastal strip of forest ecosystem, interspersed with sand dunes, river mouths, and beach zones, creating a unique coastal woodland habitat.

Flora

- Predominantly Casuarina and Cashew plantations.
- Natural vegetation includes Jamun (Syzygium cumini), Ficus spp., Neem (Azadirachta indica), Karanj (Pongamia pinnata), and Polang (Schleichera oleosa) — mostly along the banks of the Kusabhadra and Nuanai rivers.

Fauna

- **Major Wildlife Species:**
  - Spotted Deer (Chital) – the flagship herbivore of the sanctuary.
  - Monkeys, Jungle Cats, Hyenas, Monitor Lizards, and various snake species.
- **Avifauna:** Several resident and migratory bird species frequent the region due to its coastal proximity.
- **Marine Life:**

Olive Ridley Sea Turtles have been recorded nesting on the sanctuary's beaches, especially near the Balukhand–Konark coast, linking it ecologically to Odisha's broader marine conservation efforts.

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Snow Leopard

In a significant boost to conservation efforts, Himachal Pradesh has recorded 83 snow leopards, marking a notable rise from 51 individuals in 2021, as per a new survey conducted by the Wildlife Wing of the State Forest Department in collaboration with the Nature Conservation Foundation (NCF). The study underscores the success of ongoing conservation initiatives in the high-altitude ecosystems of the state.

About Snow Leopard (Panthera uncia)

The snow leopard, the State Animal of both Ladakh and Himachal Pradesh, is an elusive and highly adapted predator inhabiting the mountain ranges of Central and South Asia. It is listed as 'Vulnerable' on the IUCN Red List, with an estimated 500–700 individuals in India, primarily distributed across the Himalayan and Trans-Himalayan regions. The species also serves as the mascot of the Khelo India Winter Games 2024, named "Sheen-e She (Shan)" in Ladakh.

Geographical Range

Snow leopards are found across 12 countries, including Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan.

Distinctive Features

- **Size:** Medium-sized cat, weighing between 30–55 kg.
- **Height:** 55–65 cm | Length: 90–115 cm.
- **Fur:** Thick, smoky-grey coat with black rosettes, blending perfectly with rocky landscapes.
- **Paws:** Broad and furry, functioning as natural snowshoes.
- **Tail:** Long and bushy, aiding in balance and insulation.
- **Ears:** Small and rounded to minimize heat loss.
- **Nasal cavity:** Broad and short, helping to warm cold air before inhalation.
- **Leaping ability:** Can leap up to 10 metres (30 feet) in a single bound.
- **Vocalization:** Unlike most big cats, snow leopards cannot roar.
- **Evolution:** Genetically closer to tigers than to leopards.

Highlights of the Himachal Pradesh Survey

- Conducted over 26,000 sq. km encompassing Spiti Valley, Kinnaur, Pangi, Lahaul, and the Great Himalayan National Park.

- Used 271 camera traps for photographic evidence and population estimation.
- Reported the first-ever sighting of Pallas's Cat in Kinnaur and the rediscovery of the Woolly Flying Squirrel in Lahaul.
- Indigenous women from Kibber actively participated in data analysis — a global first, marking a milestone in community-based conservation.
- Himachal Pradesh became India's first state to complete a snow leopard population assessment, setting a replicable, low-cost model for future monitoring across other Himalayan states.

This survey not only reaffirms the presence of a thriving snow leopard population in the Western Himalayas but also highlights the importance of inclusive, science-driven conservation rooted in local community participation.

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Kanha Tiger Reserve

In a recent incident, three tigers — including two female cubs — were found dead inside the Kanha Tiger Reserve (KTR) in Madhya Pradesh. Preliminary investigations by the forest department have attributed the deaths to territorial clashes among tigers, a natural yet concerning phenomenon reflecting the rising tiger density in the reserve. The incident has prompted enhanced monitoring and patrolling measures within the core zone to prevent further conflicts.

About Kanha Tiger Reserve

Located in the Maikal ranges of the Satpura Hills in Madhya Pradesh, the Kanha Tiger Reserve is one of India's most celebrated wildlife reserves, known for its rich biodiversity and successful tiger conservation initiatives.

Historical Background

- **1879:** Declared a reserve forest.
- **1933:** Re-designated as a wildlife sanctuary.
- **1955:** Upgraded to a national park.
- **1973:** Became one of the first reserves under Project Tiger, India's flagship tiger conservation program.

Geography & Connectivity

- The reserve serves as a vital wildlife corridor between the Kanha and Pench Tiger Reserves, ensuring genetic exchange among tiger populations.
- It also maintains ecological connectivity with the Achanakmar Tiger Reserve in Chhattisgarh.
- The landscape comprises forest-covered hills, plateaus, valleys, and gently rolling terrain, supporting diverse flora and fauna.

Cultural and Tribal Significance

The region is home to indigenous tribal groups such as the Gonds and Baigas, who have lived in harmony with the forest ecosystem for generations. Their cultural practices and traditional knowledge form an integral part of the local conservation ethos.

Unique Features

- **Mascot:** Kanha became India's first tiger reserve to introduce an official mascot — "Bhoorsingh the Barasingha."
- **Conservation Legacy:** The reserve is globally acclaimed for rescuing the Hard Ground Barasingha (Swamp Deer) — the State Animal of Madhya Pradesh — from near extinction. It now harbors the last surviving population of this rare deer species.

Flora and Fauna

Flora: The park's dominant vegetation includes moist Sal and mixed deciduous forests featuring species like Bamboo, Tendu, Sal, Jamun, Arjun, and Lendia.

Fauna:

- Flagship species: Royal Bengal Tiger
- Other species: Leopard, Sloth Bear, Indian Wild Dog (Dhole), Gaur, and Barasingha.
  The diversity of habitats — from dense forests to open meadows — supports a balanced predator-prey dynamic within the ecosystem.

Kanha Tiger Reserve stands as a model for wildlife management and eco-tourism in India, symbolizing the delicate balance between conservation, community livelihoods, and ecological sustainability.

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Male Mahadeshwara Hills Wildlife Sanctuary

A 12-year-old male tiger was recently brutally hunted, dismembered, and buried in the Male Mahadeshwara Hills Wildlife Sanctuary (MMHWS), four months after a previous poisoning incident. This highlights ongoing human-wildlife conflict and poaching threats in tiger habitats.

About Male Mahadeshwara Hills Wildlife Sanctuary

- **Location:** Chamarajanagara District, Karnataka, at the intersection of the Western and Eastern Ghats.
- **Establishment:** Declared a wildlife sanctuary in 2013.
- **Connectivity:** Contiguous with Biligiri Rangaswamy Temple (BRT) Tiger Reserve, Sathyamangalam Tiger Reserve, and the Cauvery Wildlife Sanctuary.
- **Cultural Significance:** Home to the Male Mahadeshwara Temple, dedicated to Lord Shiva (Mahadeshwara).
- **Boundaries:** Kaveri River to the northeast and Palar River to the south.

Vegetation and Flora

- **Forest Type:** Primarily dry deciduous, degrading to scrub forest at the edges; includes moist deciduous, semi-evergreen, evergreen, and shola forests at higher altitudes.
- **Notable Flora:** Anogeissus latifolia, Boswellia serrata, Hardwickia binata, Chloroxylon swietenia.

Fauna

- **Mammals:** Tigers, elephants, Indian bison (gaur), wild dogs, leopards, foxes, sambars, spotted deer.
- **Birds:** Numerous species of resident and migratory birds.
- **Significance:** The sanctuary is an important tiger habitat, showing an increasing tiger population, contributing to Western and Eastern Ghats biodiversity connectivity.

Conservation Concerns

- **Poaching & Human Threats:** Recent incidents of tiger killings underline risks to apex predators.

- **Corridor Protection:** Being contiguous with other tiger reserves, the sanctuary plays a critical role in maintaining landscape connectivity for tiger movement.
- **Biodiversity Conservation:** Protecting habitats ensures survival of elephants, bison, leopards, and other endangered species.

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Nangal Wildlife Sanctuary

Around 100 wild boars were found dead in Nangal Wildlife Sanctuary in March 2025. Postmortem reports suggest that toxic waste contamination in Nangal Lake, part of the sanctuary, might be the cause. This incident highlights environmental pollution and its impact on wildlife in wetland ecosystems.

About Nangal Wildlife Sanctuary

- **Location:** Foothills of the Shivalik Hills, Rupnagar District, Punjab.
- **Establishment:** Declared a wildlife sanctuary in 2009; designated a Ramsar site in 2019.
- **Area:** 116 hectares, forming part of the larger Nangal Wetland on the banks of the Sutlej River.
- **Origin:** Includes a human-made reservoir constructed under the Bhakra-Nangal Project (1961).
- **Historical Significance:** Site where Indian and Chinese Prime Ministers formalized the Five Principles of Peaceful Coexistence (1954).

Biodiversity

- **Birds:** Over 150 species, including migratory waterfowl, making it a crucial stopover.
- **Mammals & Threatened Species:** Indian pangolin, leopards, wild boars.
- **Ecological Role:** Provides habitat for wetland-dependent species and supports local biodiversity conservation.

Environmental Concerns

- **Pollution:** Toxic waste in Nangal Lake poses a serious threat to wildlife.
- **Wetland Conservation:** Highlights the need for strict monitoring, pollution control, and habitat protection in Ramsar wetlands.
- **Human-Wildlife Interface:** Reservoir and urban influences increase vulnerability of fauna to contamination.

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Sathyamangalam Tiger Reserve.

The Madras High Court recently directed action against illegal resorts and tourist lodges operating within the prohibited zones of Sathyamangalam Tiger Reserve (STR). This move underscores the need for strict enforcement of wildlife protection laws to conserve habitat integrity and safeguard tigers.

About Sathyamangalam Tiger Reserve (STR)

- **Location:** Erode District, Tamil Nadu, at the junction of the Eastern and Western Ghats, within the Nilgiri Biosphere Reserve.
- **Area:** Over 1,400 sq.km.
- **Connectivity:** Contiguous with Mudumalai Tiger Reserve, Bandipur Tiger Reserve, and BR Tiger Reserve & Wildlife Sanctuary in Karnataka.

- **Significance:** Together, these reserves host the largest tiger population in the world, exceeding 280 tigers.
- **Historical Importance:** Previously a hunting ground of local rulers and a strategic passage along historic Mysore–Tamil Nadu trade routes.

Terrain & Climate

- **Terrain:** Hilly and undulating, altitudes range between 750 m and 1,649 m.
- **Climate:** Subtropical and dry; hot dry summers, wet and cooler monsoons, prone to river flooding.
- **Rivers:** Bhavani, Moyar, and Noyyal rivers.

Tribal Communities

- Home to indigenous tribes including the Irula and Kurumba communities, who depend on the forest for livelihood and cultural practices.

Vegetation & Flora

- **Forest Types:** Southern tropical dry thorn forests, mixed deciduous forests, semi-evergreen forests, and riparian forests.
- **Notable Flora:** Teak, sandalwood, bamboo, Terminalia, Albizia, medicinal plants, and shrubs that support wildlife and local communities.

Fauna

- **Mammals:** Tigers, elephants, panthers, sloth bears, gaur, blackbuck, spotted deer, wild boar, Nilgiri langur, common langur, bonnet macaque.
- **Others:** Striped neck mongoose, other small mammals and diverse bird species.

Conservation Significance

- STR forms a critical corridor connecting multiple tiger reserves in the Nilgiri Biosphere, essential for genetic flow and long-term survival of tiger populations.
- **Threats:** Illegal tourism, habitat fragmentation, poaching, and human-wildlife conflicts.
- **Judicial Intervention:** Court orders aim to enforce wildlife laws and curb activities threatening the reserve's ecological balance.

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IUCN World Conservation Congress

At the IUCN World Conservation Congress 2025, India unveiled its National Red List Roadmap and Vision 2025–2030, outlining the country's strategy for biodiversity conservation, species protection, and ecosystem management for the next five years.

About IUCN World Conservation Congress

- **Significance:** The largest global gathering of nature conservation experts, leaders, and decision-makers.
- **Purpose:** Shapes global priorities for nature conservation and climate action for the coming decade.
- **Frequency:** Held once every four years.
- **2025 Theme:** "Powering transformative conservation"

Key Components of the Congress

1. **Forum:** Largest knowledge marketplace for conservation science, sustainable development, and innovation.
2. **Exhibition:** IUCN members, commissions, businesses, partners, and academia showcase pavilions, booths, and events.
3. **Member's Assembly:** IUCN's highest decision-making body, where members vote on conservation policies, motions, programmes, and governance.

About IUCN

- **Full Form:** International Union for Conservation of Nature.
- **Founded:** 1948
- **Structure:** Membership union of governmental and civil society organizations, forming the world's largest environmental network.
- **Focus:** Conservation, sustainable development, ecosystem management, and climate adaptation.

Governance of IUCN

- **President & Council:** Governs IUCN between Congress sessions. The President presides over the Council.
- **Members' Assembly:** Approves programmes, statutes, policies, and elects the Council.
- **IUCN Statutes:** Define governance, decision-making processes, and operational framework.

Significance for India

- **The National Red List Roadmap aligns with IUCN's conservation objectives, focusing on:**
    - Identification of threatened species
    - Prioritization of conservation actions
    - Biodiversity monitoring and reporting
    - Community engagement and policy integration

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Southern Right Whale

Recent observations indicate that southern right whales are producing fewer calves, signaling environmental stress and disruptions caused by climate change. This decline highlights the impact of changing ocean conditions on reproductive success and marine biodiversity.

About Southern Right Whale

- **Scientific Name:** Eubalaena australis
- **Classification:** Marine mammal, one of four species of right whales.
- **Origin of Name:** Called the "right whale" by whalers because it was easy to hunt and provided valuable body parts.

Distribution

- **Habitat:** Oceans of the Southern Hemisphere.
- **Seasonal Movement:** Found in sheltered bays, and in summer, near Antarctic waters.

- **Migration Example:** Visit the South African coast from May to November annually.

Physical Features

- **Color:** Mostly dark gray or black.
- **Size & Weight:** Up to 18 meters (60 feet) long; weighing around 60 tons.
- **Head:** Very large (~¼ of body length), with distinctive white calluses hosting colonies of parasites.
- **Blubber:** Thick layer provides insulation against cold water.

Conservation Status

- **IUCN Red List:** Least Concern
- **Threats:** Climate change, ocean warming, human-induced environmental changes affecting food supply and breeding grounds.

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Palamau Tiger Reserve

During Wildlife Week celebrations, villagers near Palamau Tiger Reserve voluntarily surrendered their weapons, including guns and traps, demonstrating increased awareness and participation in wildlife protection and anti-poaching efforts.

About Palamau Tiger Reserve

- **Location:** Western side of Latehar district, on the Chhotanagpur Plateau, Jharkhand.
- **Part of:** Betla National Park
- **Area:** ~1,026 sq.km
- **Significance:** One of the first 9 tiger reserves in India under Project Tiger.
- **Historical Note:** The first tiger census using pugmark counts was conducted here in 1932 under J.W. Nicholson.

Terrain & Rivers

- **Terrain:** Undulating, with valleys, hills, and plains.
- **Rivers:** North Koyal, Auranga, and Burha (Burha is the only perennial river).
- **Geology:** Primarily gneiss, with deposits of granite and limestone.
- **Minerals:** Rich in bauxite and coal.

Vegetation & Flora

- **Forest Types:** Moist deciduous and dry deciduous forests.
- **Dominant Trees:** Sal, bamboo, and other native species.

Fauna

- **Mammals:** Tiger, Asiatic elephant, leopard, grey wolf, wild dog, gaur, sloth bear, four-horned antelope.
- **Conservation Importance:** Keystone species like tigers and elephants highlight the ecological significance of the reserve.

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Green Sea Turtle

The IUCN Red List status of the green sea turtle (Chelonia mydas) has recently improved from Endangered to Least Concern, reflecting the positive impact of sustained conservation efforts worldwide.

About Green Sea Turtle

- **Scientific Name:** Chelonia mydas
- **Significance:** Largest hard-shelled sea turtle.
- **Name Origin:** Refers to the green fat beneath the shell, not the carapace color (olive to black).
- **Keystone Species:** Plays a crucial role in tropical marine ecosystems, particularly in maintaining seagrass beds and coral reef health.

Distribution

- Found in tropical and subtropical oceans worldwide.

Diet

- **Juveniles:** Carnivorous
- **Adults:** Omnivorous, feeding on seagrass, algae, and small invertebrates

Physical Features

- Small head with beak-like jaws adapted to diet
- No visible ears; eardrums covered by skin; good sense of hearing at low frequencies and strong sense of smell
- Spends almost entire life underwater, only coming ashore to nest
- **Lifespan:** 60–70 years

Conservation Status

- **IUCN Red List:** Least Concern
- **Threats mitigated by:** Habitat protection, nesting site conservation, anti-poaching measures, and awareness programs

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IUCN World Commission on Protected Areas (WCPA)

The Director of Kaziranga National Park and Tiger Reserve was recently honoured with the Kenton R. Miller Award, presented by the IUCN World Commission on Protected Areas (WCPA) for outstanding innovation in protected area management.

About IUCN's World Commission on Protected Areas (WCPA)

- **Type:** One of six technical commissions of the International Union for Conservation of Nature (IUCN)
- **Established:** 1948
- **Purpose:** Global network dedicated to nature conservation and the sustainable use of natural resources
- **Focus Areas:**
    - Protected area governance and policy

- Management of national parks, wildlife reserves, and marine protected areas
- Supporting creation and effective management of protected areas worldwide

Kenton R. Miller Award

- **Established:** 2006
- **Frequency:** Every two years
- **Purpose:** Recognises innovation in national parks and protected area sustainability
- **Eligibility:** Individuals or teams demonstrating excellence in:
  - Planning and management
  - Finance and governance
  - Monitoring and capacity building
  - Communication strategies
- **Reward:** US $5,000 cash prize
- **Named After:** Kenton R. Miller, former Director General of the IUCN

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DISASTER MANAGEMENT

Urban Flood Risk Management Programme (UFRMP)

A high-level committee chaired by the Union Home Minister has recently approved Phase-II of the Urban Flood Risk Management Programme (UFRMP). The programme aims to enhance India's preparedness and resilience against urban flooding, a recurring challenge in many rapidly growing cities.

About the Urban Flood Risk Management Programme (UFRMP)

The UFRMP is a national initiative designed to assist states in reducing urban flood vulnerability through a combination of structural and non-structural measures. It promotes a uniform, integrated approach to flood management across major Indian cities.

Cities Covered under UFRMP Phase-II (11 Cities):

Bhopal, Bhubaneshwar, Guwahati, Jaipur, Kanpur, Patna, Raipur, Thiruvananthapuram, Visakhapatnam, Indore, and Lucknow.

Selection Criteria:

These cities were chosen based on:

- Their population size and status as state capitals or major urban centres.
- High flood vulnerability due to unplanned urbanization and inadequate drainage.
- Physical, environmental, socio-economic, and hydro-meteorological factors contributing to flood risk.

Funding Pattern:

The scheme follows the National Disaster Mitigation Fund (NDMF) guidelines:

- 90% of the cost will be borne by the Central Government,
- 10% by the respective State Governments.

Key Activities under the Programme:

❖ **Structural Measures:**

- Interlinking of water bodies for improved stormwater management.
- Construction of flood protection walls and embankments.
- Erosion control and soil stabilization through Nature-Based Solutions (NBS) such as vegetative barriers and bioengineering methods.

❖ **Non-Structural Measures:**

- Establishment of Flood Early Warning Systems (FEWS) and real-time data acquisition networks.
- Capacity building and community awareness for effective flood response.
- Development of urban flood hazard mapping and resilience planning tools.

By combining engineering solutions with digital monitoring and community participation, the Urban Flood Risk Management Programme – Phase II aims to create climate-resilient cities that can better withstand and adapt to extreme rainfall and flooding events.

ANURAG BACHAN'S
DROANACHARYA-IAS

SOME OF SUCCESSFUL GEMS WITH ANURAG SIR

AASTHA SINGH
Rank 61st (IAS)

ANJALI GARG
Rank 79th (IAS)

ANKUR
Rank 37th (IAS)

SANYA
Rank 84th (IAS)

SAWAN
Rank 89th (IAS)

JYOTINDER BAJWA
Rank 256th (IAS) / 20th (PCS)

ASHOK
Rank 325th (IAS)

AFTAAB RASOOL
Rank 412nd (IAS)

MANISH YADAV
(IAS)

KHUSHDIL SANDHU
Rank 5th (PCS)

AMAN CHAWLA
Rank 6th (PCS)

HARPREET SINGH SIDHU
(PCS)

PRIYA KHERA
Rank 45th (DSP)

JASPREET
(INDUSTRY OFFICER)

SANKALP GAUTAM
Rank 2nd (HAS)

TEHSEEN
(IPS)

SAMAY SINGH
(IPS)

AREEBA
Rank 109th (IPS)

MAYANK MISHRA
Rank 228th (IPS)

DILMIL SINGH
(IRS)

RANVIR SINGH
(IRS)

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