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July 2024

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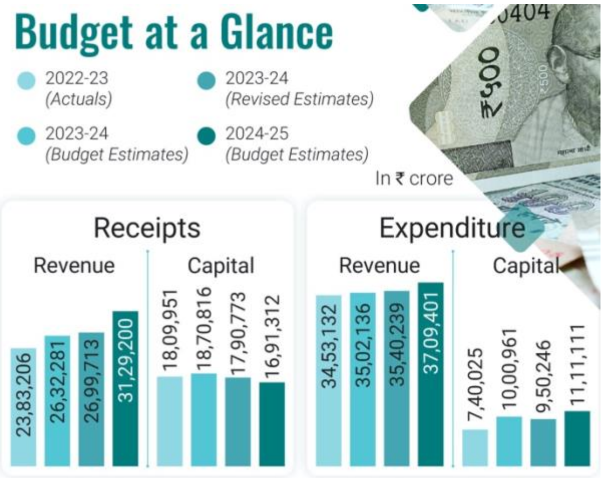
Focus Article

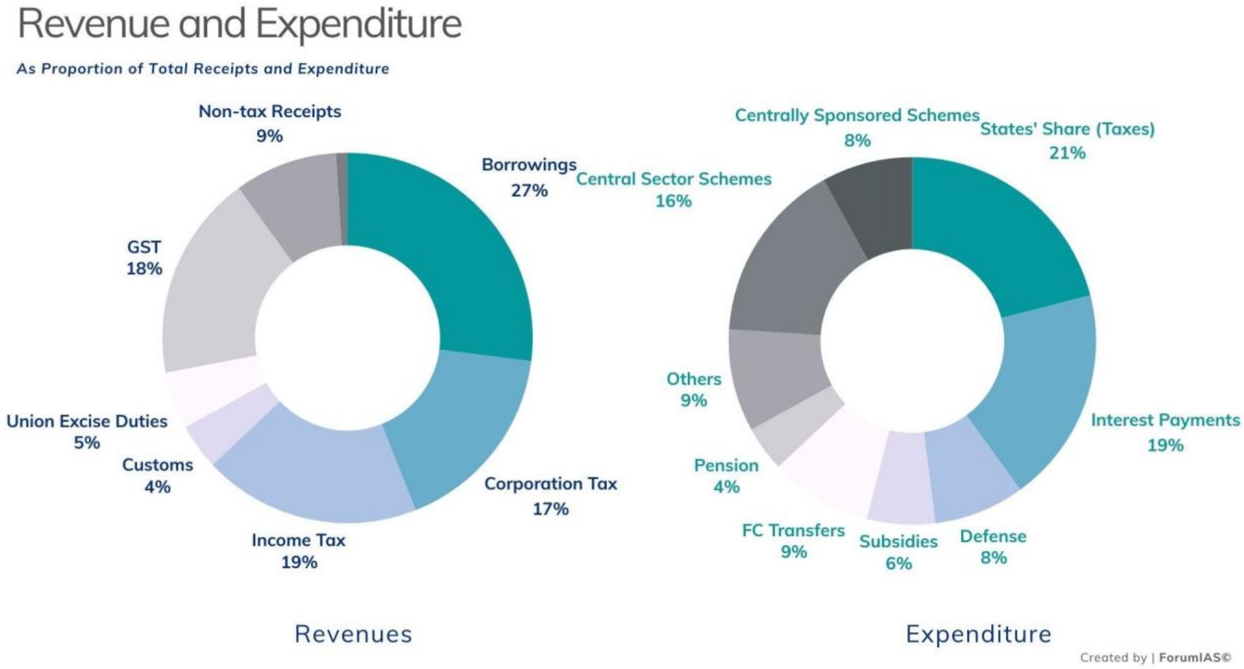
Union Budget 2024-25

News: The Union Minister for Finance presented the Budget for FY2024-25 in the Parliament.

What are the macro-economic highlights of the Budget 2024-25?

- **Total Receipts**: For FY2024-25, the **total receipts** (other than borrowings) are estimated at **INR 32.07 lakh crore**. The gross and net market borrowings through dated securities are estimated at INR 14.01 lakh crore and INR 11.63 lakh crore respectively. **Net tax receipts** are estimated at **INR 25.83 lakh crore**.
- The **total expenditure** has been estimated to be **INR 48.21 lakh crore**.
- **Fiscal Deficit**: It has been estimated at 4.9% of GDP.
- **Inflation Target**: India's inflation continues to be low, stable and moving towards the 4% target. Core inflation (non-food, non-fuel) is 3.1% at present.
- India's economic growth is expected to be robust despite global headwinds.



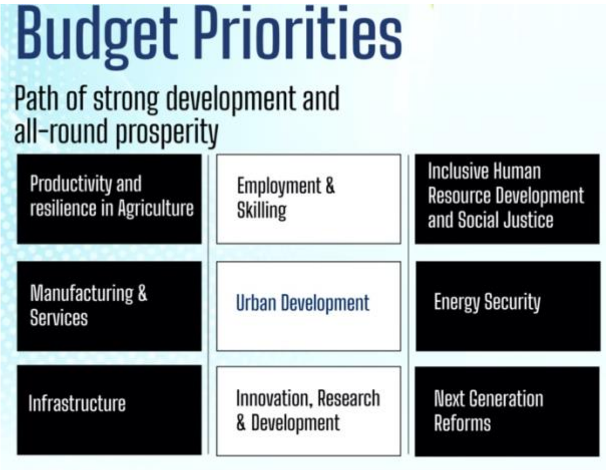


Source: India Budget. Sources of revenue and expenditure (as % of total).

What are the 9 priority areas of Budget 2024-25 to achieve the goal of *Viksit Bharat*?

Priority 1: Productivity and Resilience in Agriculture

- **Transforming Agriculture Research**: The focus will be on **raising the productivity** and **developing climate resilient varieties**. Funding will be provided in **challenge mode**, including to the private sector.



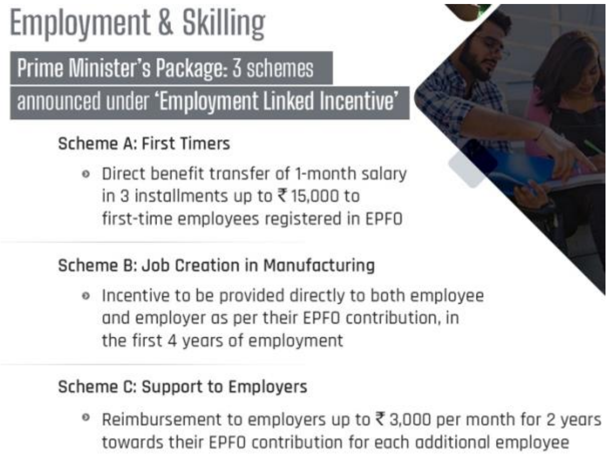
Budget Priorities

Path of strong development and all-round prosperity

Productivity and resilience in Agriculture	Employment & Skilling	Inclusive Human Resource Development and Social Justice
Manufacturing & Services	Urban Development	Energy Security
Infrastructure	Innovation, Research & Development	Next Generation Reforms

- **Release of New Varieties**: 109 new high-yielding and climate-resilient varieties of 32 field and horticulture crops will be released for cultivation by farmers.
- **Natural Farming**: In the next two years, 1 crore farmers across the country will be initiated into natural farming supported by certification and branding.
- **Missions for Pulses and Oilseeds**: A strategy is being put in place to achieve '*Atmanirbharta*' for oil seeds such as mustard, groundnut, sesame, soybean, and sunflower.
- **Digital Public Infrastructure for Agriculture**: Digital crop survey for Kharif season using the DPI will be taken up in 400 districts. The details of 6 crore farmers and their lands will be brought into the farmer and land registries. The issuance of *Jan Samarth* based Kisan Credit Cards will be enabled in 5 states.
- **Shrimp Production & Export**: Financial support for setting up a network of Nucleus Breeding Centres for Shrimp Broodstocks will be provided. Financing for shrimp farming, processing and export will be facilitated through NABARD.
- **National Cooperation Policy**: A National Cooperation Policy will be brought for systematic, orderly and all-round development of the cooperative sector.

Priority 2: Employment & Skilling



Employment & Skilling

Prime Minister's Package: 3 schemes announced under 'Employment Linked Incentive'

Scheme A: First Timers

- Direct benefit transfer of 1-month salary in 3 installments up to ₹ 15,000 to first-time employees registered in EPFO

Scheme B: Job Creation in Manufacturing

- Incentive to be provided directly to both employee and employer as per their EPFO contribution, in the first 4 years of employment

Scheme C: Support to Employers

- Reimbursement to employers up to ₹ 3,000 per month for 2 years towards their EPFO contribution for each additional employee

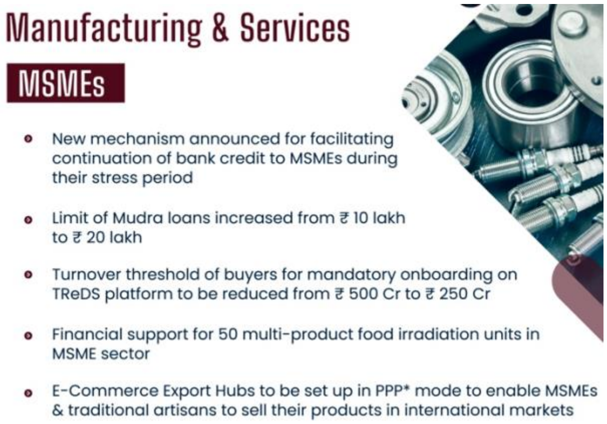
- **Employment Linked Incentive**: 3 schemes for 'Employment Linked Incentive' will be based on enrolment in the EPFO, with focus on recognition of first-time employees, and support to employees and employers. These will be **Scheme A for first timers**, **Scheme B for Job Creation in Manufacturing** and **Scheme C for Support to Employers**.
- **Participation of Women in the Workforce**: It will be facilitated through setting up of **working women's hostels** in collaboration with the industry and **establishment of creches**. In addition, partnership will seek to organize **women-specific skilling programmes**, and promotion of market access for women SHG enterprises.
- **Skilling Programme**: A new centrally sponsored scheme will be launched to skill 20 lakh youth over a 5-year period. 1,000 **Industrial Training Institutes** (ITIs) will be upgraded in hub and spoke arrangements with outcome orientation.
- **Skilling Loans**: The Model Skill Loan Scheme will be revised to facilitate loans of up to INR 7.5 lakh with a guarantee from a Government promoted Fund. This measure is expected to help 25,000 students every year.
- **Education Loans**: Financial support will be provided for loans up to INR 10 lakh for higher education in domestic institutions. e-vouchers for this purpose will be given directly to 1 lakh students every year for annual interest subvention of 3% of the loan amount.
- **Internship in Top Companies**: A comprehensive scheme for providing internship opportunities to 1 crore youth in top 500 companies in 5 years will be launched. They will gain exposure for 12 months to real-life business environment, varied professions and employment opportunities. An internship allowance of INR

5,000 per month along with a one-time assistance of INR 6,000 will be provided. Companies will be expected to bear the training cost and 10% of the internship cost from their **CSR funds**.

Priority 3: Inclusive Human Resource Development and Social Justice

- **Saturation approach**: Saturation approach will be adopted to cover all eligible people through various programmes including those for education and health. It will empower them by improving their capabilities.
  - Implementation of schemes meant for supporting economic activities by craftsmen, artisans, SHGs, SC/ST and women entrepreneurs, and street vendors, such as PM Vishwakarma, PM SVANidhi, National Livelihood Missions, and Stand-Up India will be stepped up.
- ***Purvodaya***: It is a plan for the all-round development of the eastern region of the country covering Bihar, Jharkhand, West Bengal, Odisha and Andhra Pradesh. It will cover infrastructure, development of human resource and generation of economic opportunities to make the region an engine to attain *Viksit Bharat*.
- **Andhra Pradesh Reorganization Act**: In FY2024-25, INR 15,000 crore will be arranged, with additional amounts in future years. Provisions have been made for financing and early completion of the **Polavaram Irrigation Project** and Grants for backward regions of Rayalaseema, Prakasam and North Coastal Andhra.
- **PM *Awas Yojana***: Three crore additional houses under the PM *Awas Yojana* in rural and urban areas will be provided.
- **Women-led development**: For promoting women-led development, the Budget carries an allocation of more than INR 3 lakh crore for schemes benefitting women and girls.
- ***Pradhan Mantri Janjatiya Unnat Gram Abhiyan***: It aims to improve the socio-economic condition of tribal communities, by adopting saturation coverage for tribal families in tribal-majority villages and aspirational districts. It will cover 63,000 villages benefitting 5 crore tribal people.
- **Bank Branches in the North-Eastern Region**: More than 100 branches of India Post Payment Bank will be set up in the North East region to expand the banking services.

Priority 4: Manufacturing & Services


Manufacturing & Services

MSMEs

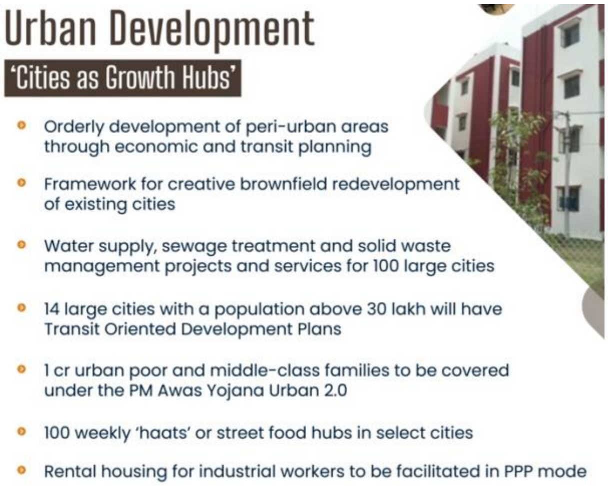
- New mechanism announced for facilitating continuation of bank credit to MSMEs during their stress period
- Limit of Mudra loans increased from ₹ 10 lakh to ₹ 20 lakh
- Turnover threshold of buyers for mandatory onboarding on TReDS platform to be reduced from ₹ 500 Cr to ₹ 250 Cr
- Financial support for 50 multi-product food irradiation units in MSME sector
- E-Commerce Export Hubs to be set up in PPP* mode to enable MSMEs & traditional artisans to sell their products in international markets

- **Support for promotion of MSMEs**: The main initiatives include Credit Guarantee Scheme for MSMEs in the Manufacturing Sector, new assessment model for MSME credit, Credit Support to MSMEs during stress period, enhanced Mudra Loans, SIDBI branches in MSME clusters and 50 MSME Units for Food Irradiation, Quality & Safety Testing.
- **Industrial Parks**: Development of investment-ready "plug and play" industrial parks with complete infrastructure in or near 100 cities will be undertaken. Twelve industrial parks under the **National Industrial Corridor Development Programme** will be sanctioned.
- **Critical Mineral Mission**: Critical Mineral Mission for domestic production, recycling of critical minerals, and overseas acquisition of critical mineral assets will be launched.
- **Digital Public Infrastructure Applications**: DPI applications for productivity gains, business opportunities, and innovation are planned in the areas of credit, e-commerce, education, health, law and justice, logistics, MSME, services delivery, and urban governance.

- **Debt Recovery and IBC**: Steps for reforming and strengthening debt recovery tribunals will be taken. Additional tribunals will be established. Out of those, some will be notified to decide cases exclusively under the Companies Act.

Priority 5: Urban Development

- **Cities as Growth Hubs and Creative redevelopment of Cities**: Policies will be formulated for achievement of both these initiatives.
- **Transit Oriented Development (TOD)**: TOD plans for 14 large cities with population above 30 lakh will be formulated, along with an implementation and financing strategy.
- **Urban Housing**: Under the PM *Awas Yojana* Urban 2.0, housing needs of 1 crore urban poor and middle-class families will be addressed with an investment of **INR 10 lakh crore**. This will include the central assistance of INR 2.2 lakh crore in the next 5 years.
- **Street Markets**: The development of 100 weekly '*haats*' or street food hubs in select cities will be undertaken.



Urban Development

'Cities as Growth Hubs'

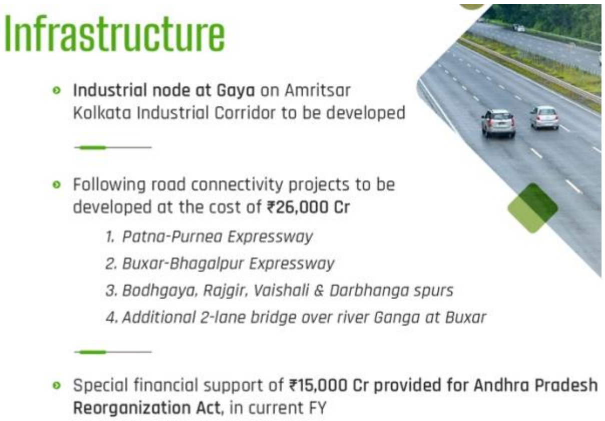
- Orderly development of peri-urban areas through economic and transit planning
- Framework for creative brownfield redevelopment of existing cities
- Water supply, sewage treatment and solid waste management projects and services for 100 large cities
- 14 large cities with a population above 30 lakh will have Transit Oriented Development Plans
- 1 cr urban poor and middle-class families to be covered under the PM Awas Yojana Urban 2.0
- 100 weekly 'haats' or street food hubs in select cities
- Rental housing for industrial workers to be facilitated in PPP mode

Priority 6: Energy Security

- **Initiatives with Private Sector in Nuclear Energy**: The Government will partner with private sector to set up Bharat Small Reactors, R&D of Bharat Small Modular Reactor and newer technologies for nuclear energy.
- **PM *Surya Ghar Muft Bijli Yojana***: It has been launched to install rooftop solar plants to enable 1 crore households to obtain free electricity up to 300 units every month. The scheme has generated remarkable response with more than 1.28 crore registrations and 14 lakh applications.
- **Pumped Storage Policy**: A policy for promoting pumped storage projects will be brought out for electricity storage and facilitating smooth integration of the growing share of renewable energy (with its variable & intermittent nature) in the overall energy mix.

Priority 7: Infrastructure

- **Provisions for Infrastructure**: Provision of INR 11,11,111 crore for infrastructure (3.4% of GDP) has been made. Provision of INR 1.5 lakh crore has been made to States as long term interest free loans.
- **Irrigation and Flood Mitigation**: Financial support for projects with estimated cost of INR 11,500 crore such as the Kosi-Mechi link and 20 other ongoing and new schemes will be provided.



Infrastructure

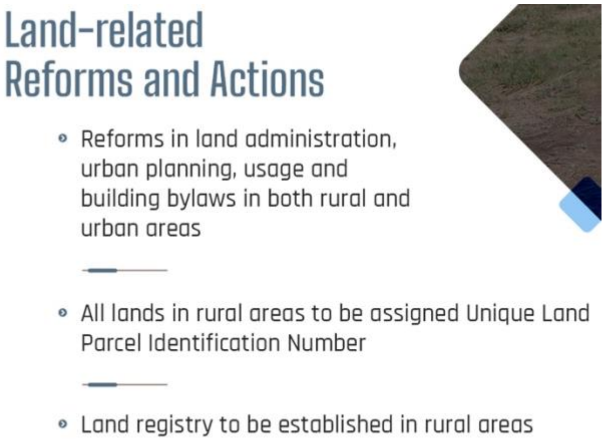
- **Industrial node at Gaya** on Amritsar Kolkata Industrial Corridor to be developed
- Following road connectivity projects to be developed at the cost of **₹26,000 Cr**
  1. *Patna-Purnea Expressway*
  2. *Buxar-Bhagalpur Expressway*
  3. *Bodhgaya, Rajgir, Vaishali & Darbhanga spurs*
  4. *Additional 2-lane bridge over river Ganga at Buxar*
- Special financial support of **₹15,000 Cr provided for Andhra Pradesh Reorganization Act**, in current FY

Priority 8: Innovation, Research & Development

- **Anusandhan National Research Fund**: The Fund for basic research and prototype development will be operationalized.
- **Private Sector Driven Research**: Private sector-driven research and innovation at commercial scale with a financing pool of INR 1 lakh crore will be facilitated.
- **Space Economy**: A venture capital fund of INR 1,000 crore is to be set up.

Priority 9: Next Generation Reforms

- **Rural & Urban Land Related Actions**: Unique Land Parcel Identification Number or ***Bhu-Aadhaar*** for all lands will be launched. Land records in urban areas will be digitized with GIS mapping.
- **NPS Vatsalya**: A plan for contribution by parents and guardians for minors will be launched. On attaining the age of majority, the plan can be converted seamlessly into a normal NPS account.
- **Taxonomy for Climate Finance**: The availability of capital for climate adaptation and mitigation related investments will be enhanced.

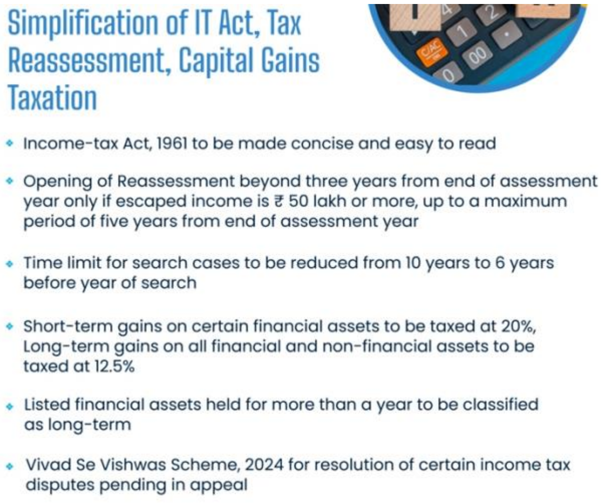


Land-related Reforms and Actions

- Reforms in land administration, urban planning, usage and building bylaws in both rural and urban areas
- All lands in rural areas to be assigned Unique Land Parcel Identification Number
- Land registry to be established in rural areas

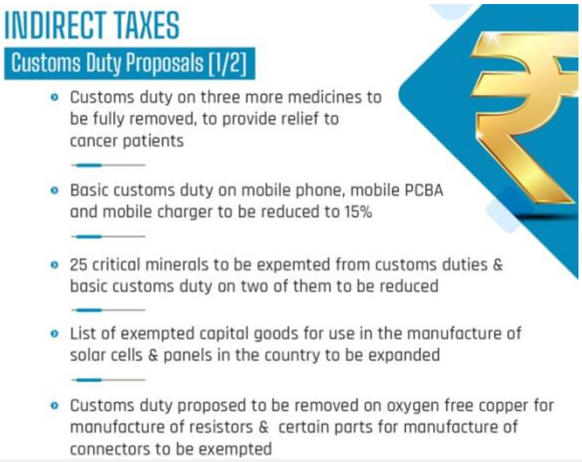
What are the Tax related Proposals in the Budget 2024-25?

- **Sector Specific Customs Duty Proposals**: Comprehensive review of the rate structure for ease of trade, removal of duty inversion and reduction of disputes will be undertaken.
- **Rationalisation of Capital Gains**: Under the new proposal, short-term gains on financial assets will attract 20% tax, long-term gains on all financial and non-financial assets will attract a tax rate of 12.5% and the exemption limit for capital gains on financial assets will be increased to INR 1.25 lakhs per year.
- **Simplifying New Tax Regime**: Standard Deduction for salaried employees will be increased from INR 50,000 to INR 75,000. The deduction on family pension for pensioners will be increased from INR 15,000 to INR 25,000.



Simplification of IT Act, Tax Reassessment, Capital Gains Taxation

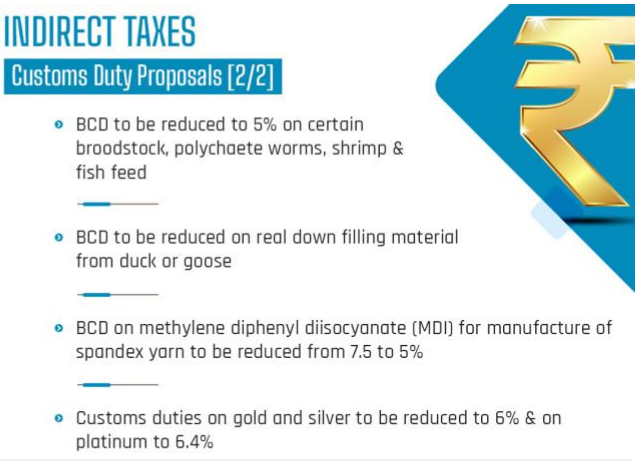
- Income-tax Act, 1961 to be made concise and easy to read
- Opening of Reassessment beyond three years from end of assessment year only if escaped income is ₹ 50 lakh or more, up to a maximum period of five years from end of assessment year
- Time limit for search cases to be reduced from 10 years to 6 years before year of search
- Short-term gains on certain financial assets to be taxed at 20%, Long-term gains on all financial and non-financial assets to be taxed at 12.5%
- Listed financial assets held for more than a year to be classified as long-term
- Vivad Se Vishwas Scheme, 2024 for resolution of certain income tax disputes pending in appeal



INDIRECT TAXES

Customs Duty Proposals [1/2]

- Customs duty on three more medicines to be fully removed, to provide relief to cancer patients
- Basic customs duty on mobile phone, mobile PCBA and mobile charger to be reduced to 15%
- 25 critical minerals to be expemted from customs duties & basic customs duty on two of them to be reduced
- List of exempted capital goods for use in the manufacture of solar cells & panels in the country to be expanded
- Customs duty proposed to be removed on oxygen free copper for manufacture of resistors & certain parts for manufacture of connectors to be exempted



INDIRECT TAXES

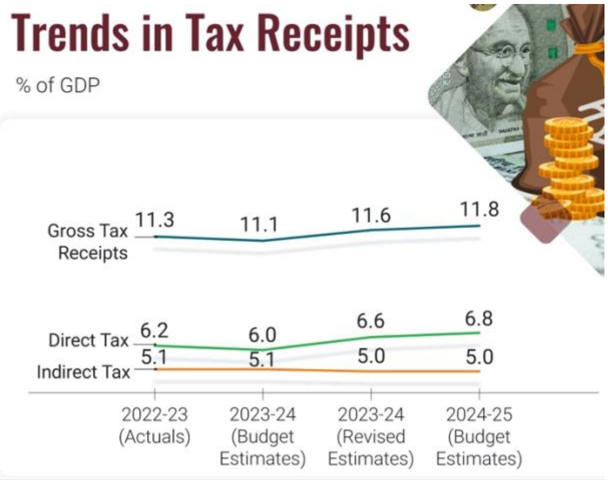
Customs Duty Proposals [2/2]

- BCD to be reduced to 5% on certain broodstock, polychaete worms, shrimp & fish feed
- BCD to be reduced on real down filling material from duck or goose
- BCD on methylene diphenyl diisocyanate (MDI) for manufacture of spandex yarn to be reduced from 7.5 to 5%
- Customs duties on gold and silver to be reduced to 6% & on platinum to 6.4%

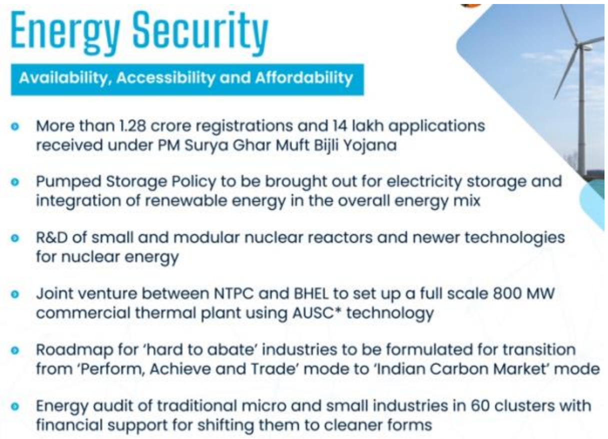
Source: India Budget. Indirect Tax Proposal of Budget 2024-25. The proposals will have several benefits like affordable medicines, support green transition (solar panels), enhance marine exports, boost strategic sectors (critical minerals) and improve domestic value addition.

What are the positives aspects of the Budget 2024-25?

- **Focus on Youth**: Incentives have been provided to first time employees and employers with an outlay of INR 10,000 crore; internships with an outlay of INR 2,000 crore and emphasis has been put on the aspect of Skill development with the cooperation of the State Governments (Model Skill Loan Scheme).
    - The steps taken in the Budget 2024-25, deliver on the rising aspirations of Youth as recommended by the Economic Survey 2024-25.
- **Focus on MSMEs**: The steps like Credit Guarantee Scheme, New assessment model, Credit Support during stress period, are attempts to address the financial and working capital challenges faced by the MSMEs.
- **Tax Relief for the Salaried**: The standard deduction has been raised and the tax slabs with their relevant tax rates have been revised. This will leave more money in the hands of the salaried class.
- **Fiscal Consolidation**: Budget for 2024-25 sticks to the Government's fiscal consolidation path, with the Fiscal Deficit proposed to be pared to **4.9% of GDP**. This increases the **possibility of an upgrade in the sovereign ratings**. Budget unveils an unequivocal focus on fiscal stability and continuity of sustainable growth impulses.
- **Support to Farmers**: Promotion of *Atmanirbharta* in pulses and oilseeds, focus on agriculture research (in context of climate change), large-scale clusters for vegetable production, and DPI in agriculture for coverage of farmers and their lands, are all measures to support farmers. A thriving agriculture sector will allow the Government to deliver on its promise of food grains under the *Pradhan Mantri Garib Kalyan Anna Yojana* (PMGKAY), which has now been extended for 5 years.
- **Housing for All**: The outlay for PM *Awas Yojana* (PMAY) Urban and Rural has seen a massive jump of 37% and 70% respectively. The Budget reaffirms that housing for all remains a key focus area for the Government.
- **PLI Schemes for *Atmanirbhar Bharat***: The outlay on PLIs has been increased by 75%. This increase accompanied by tweaks to sectoral custom duties is a bid to **support domestic manufacturing** and **deepen local value addition**.



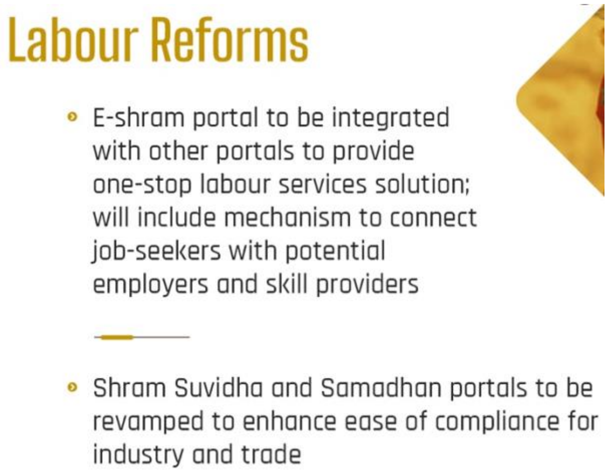
Source: India Budget. Taxes (as % of GDP) have shown an increasing trend).



Energy Security

Availability, Accessibility and Affordability

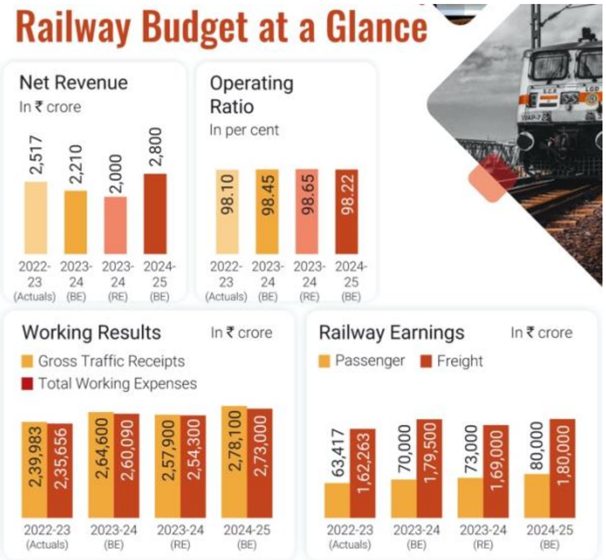
- More than 1.28 crore registrations and 14 lakh applications received under PM Surya Ghar Muft Bijli Yojana
- Pumped Storage Policy to be brought out for electricity storage and integration of renewable energy in the overall energy mix
- R&D of small and modular nuclear reactors and newer technologies for nuclear energy
- Joint venture between NTPC and BHEL to set up a full scale 800 MW commercial thermal plant using AUSC* technology
- Roadmap for 'hard to abate' industries to be formulated for transition from 'Perform, Achieve and Trade' mode to 'Indian Carbon Market' mode
- Energy audit of traditional micro and small industries in 60 clusters with financial support for shifting them to cleaner forms



Labour Reforms

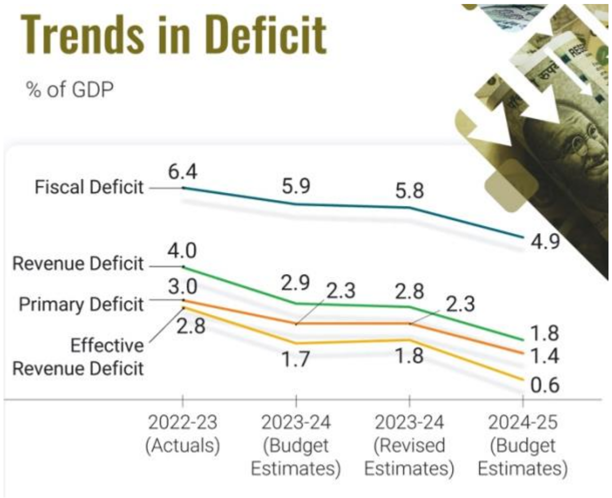
- E-shram portal to be integrated with other portals to provide one-stop labour services solution; will include mechanism to connect job-seekers with potential employers and skill providers
- Shram Suvidha and Samadhan portals to be revamped to enhance ease of compliance for industry and trade

What are the concerns associated with the Budget 2024-25?



- **Cuts in the Social Sector Schemes**: The Budget has cut the share of social sector schemes. The outlay for the rural job guarantee scheme, MGNREGA is at a 9-year low share of 1.78% of overall outlay.
- **Removal of Indexation**: The removal of indexation for calculating the value of the long term asset (Real estate), is being viewed as an additional tax burden for the real estate property dealers.
- **No Announcement on Indian Railways**: There were no announcements on the Railway sector which continues to suffer from low freight and passenger capacity, low staff and manpower and safety issues.
- **Simplification of GST**: The budget has failed to address the demands of MSMEs for simplification and rationalization of the GST regime.
- **Fiscal Consolidation**: Some critics hold that Government's 'obsession' with fiscal consolidation, which is visible in its bid to reduce the fiscal deficit to 4.9% of GDP in 2024-25 (5.1% in the interim budget), may constrain Government spending.
- **Strategy for Economic Slowdown**: Critics have also pointed that the budget lacks the clear economic strategy and vision to tackle the slowdown in aggregate demand, private investment, exports and the resulting jobs crisis. The measures announced, like employment-linked incentives, seem too small to have a meaningful impact.

What should be the way forward?



Source: India Budget. The Government has kept focus on fiscal consolidation to consistently reduce the Fiscal Deficit.

- **Monitoring Performance of the Employment Schemes**: The performance of the employment schemes need to be measured against the target to create 78.5 lakh non-farm jobs annually until 2030 (Economic Survey). Close monitoring of the employment schemes will enable course correction in case the results are not according to expectations.
- **Raise Revenues**: The approach to achieve fiscal consolidation should be to increase the revenues rather than reducing the expenditure. Economists argue expenditure multipliers tend to be higher in an economy than revenue multipliers.
- **Health and Education**: Social sector expenditures by Government must be increased for achieving the goal of inclusive development.
- **Strategic Asset Sales Programme**: Asset monetisation will help in enhancing Government revenues as the market conditions remain buoyant. This will help in **bringing down fiscal deficit** without the need of reducing Government expenditure.
- **Role of Private Sector**: The Government has kept the Capex high since 2020-21 to revive the economy post-COVID. Now the Government should pass the baton of infrastructural development to the private sector and reduce the crowding out effect in the economy.

General Studies Paper I

1. Preserving India's Geological Heritage

News: There is a need to protect India's rich geological heritage and geo-relics, similar to the protection provided to archaeological and cultural heritage sites.

What is the significance of preserving Geo-heritage Sites?

- India possesses rich geological heritage. India is home to **diverse morphology** that has evolved over billions of years. There are variety of rocks and minerals and distinctive fossil assemblages. In the absence of protection, the rich heritage will be lost.
- They help preserve representative examples of India's geological features and events.
- Geo-heritage sites serve as **educational spaces for geological literacy**.
- They provide insights into the evolution of Indian terrain.
- These sites allow present and future generations to appreciate natural geological laboratories.

What are the difficulties in preserving Geo-heritage Sites in India?

- **Limited Traction and Awareness**: Geo-conservation in India lacks focused efforts. There is a general lack of awareness concerning important geological sites e.g., the **Dhala meteoritic impact crater** in Shivpuri, Madhya Pradesh (believed to have been formed between 1.5 to 2.5 billion years ago), and the **Lonar crater** in Maharashtra (~576,000 years old), highlight geological history that remains **relatively unknown**.
- **Impact of Development and Mining**: Many fossil-bearing sites have been destroyed due to development and real estate growth. This is further compounded by extensive stone mining activities in India.
- **Lack of Specific Legislation**: Countries like Canada and China have **designated national parks for their geo-heritage sites**, guided by UNESCO's recommendations for Global Geoparks. They have enacted laws to designate and protect such areas. India lacks specific legislation or policies for conserving its geo-heritage despite being a signatory to the **UNESCO Global Geoparks Programme**.
- **Lack of Adequate Power**: The Geological Survey of India (GSI) has identified 34 geological sites but **lacks the authority to enforce preservation measures** e.g., the geological heritage site in Varkala, Kerala having millions of years old rocks; was partially demolished to save some unauthorized human structures from risk of landslides.
- **Lack of Focused Approach**: The Government withdrew the attempt to establish a **National Commission for Heritage Sites**, originally introduced in the Rajya Sabha, for unspecified reasons. Similarly, in 2022, the Ministry of Mines drafted a **Geo-heritage Sites and Geo-relics** (Preservation and Maintenance) **Bill**, aimed at preserving and maintaining geo-heritage sites and geo-relics, but no further steps have been taken since then. *(Refer EPIC April 2022 for Geological Heritage Sites)*.

What should be the way forward?

- India's turbulent geological history is documented in its rocks and landscapes and should be **regarded as part of our non-cultural heritage**.
- There should be **compilation of list of all potential geo-sites across India**, beyond the 34 already identified by the Geological Survey of India (GSI).
- There is a need to **develop legislation for geo-conservation** modelled after the **Biological Diversity Act**, 2002. *(Refer EPIC March 2023 for Draft Geo-heritage Sites and Geo-relics (Preservation and Maintenance) Bill, 2022)*.
- The Government should create a **National Geo-Conservation Authority** similar to the **National Bio-diversity Authority**, ensuring independent oversight in preservation of important geological sites and safeguard the autonomy of researchers and private collectors engaged in academic endeavours.

2. Gender Perspective on Heatwaves

News: Rising instances of heatwaves have a disproportionate impact on women. A multidimensional approach is required to address the challenges faced by women due to frequent heatwaves.

What are the impacts of heatwaves on women?

- **Heat Stress in Informal Settlements**: Homes in such settlements are made up of tin and asbestos which trap heat. Women work in poorly ventilated rooms or kitchens. **Energy poverty** due to lack of regular access to electricity compounds the heat stress.
- **Impact on Health**: Due to their **physiological makeup**, **women are at greater risk** during heat waves. Their **higher body fat percentage** and **lower water content** affect their **heat tolerance** and **hydration levels**.
  - **Hormonal fluctuations** related to **menstrual cycles**, pregnancy, and menopause can make it **harder to regulate body temperature**.
  - **Pregnancy lowers a woman's tolerance to heat** as physiological changes escalate metabolic demands, elevating internal body temperatures and making women more susceptible to heat stress and dehydration.
  - Exposure to heat can **impair female reproductive health**, causing **menstrual irregularities** or **decreased fertility**.
  - Every 1°C rise in maternal heat exposure is linked to a **27-42% increase** in the **risk of miscarriage** or **stillbirth**.
- **Care Work and Time Poverty**: Under traditional gender roles, women are expected to be the **primary caregivers for children**, **older people**, and **the sick**. They spend additional time on care work when a family member suffers from a climate-related illness like heat stroke. This reduces time available for other responsibilities.
- **Cultural Constraints**: Cultural norms may **constrain women's mobility and clothing**, limiting their ability to keep cool. Women may not have a choice but to stay indoors or work through the discomfort caused by indoor heat.
- **Economic Impact**: Heatwaves **reduce productivity**. It disproportionately impact women who work on **piece-rate basis** (i.e., payment based on output rather than hours worked) as the output falls drastically. A survey found that over 40% of women home-based workers reported reduced work hours and earnings due to rising temperatures. It makes them **economically vulnerable**.
- **Lack of Access to Cooling**: Many women lack access to cooling solutions like **poorly ventilated kitchens** without fans where working on **biomass-based stoves** can lead to **heat stress** and other **health risks**.
- **Migration of Men**: Migration of men from rural areas may burden women with **additional responsibilities** including working in agricultural fields in female-only households.

Thus, women face triple threat of health, social and economic impacts due to heatwaves.

What should be done?

Asian Development Bank has suggested a multi-dimensional approach to address the challenges:

Policy Initiatives

- **Gender-responsive Heat Action Plans**
  - National and sub-national level plans should be established that incorporate **gender-sensitive protocols** and **readiness strategies** within the **most affected sectors** (like construction), ensuring that women's unique needs are addressed.
- **Heat-responsive Building Codes**
  - Building standards should be revised to **enhance natural cooling and ventilation**, making spaces safer and more comfortable for women and children.

Design and Infrastructure

- **Reflective Roofing Solutions**
    - To reduce indoor temperatures affordably, widespread application of innovative, **reflective materials** like "ultra-white" paint and **high-albedo tiles on rooftops** should be implemented.
- **Urban Greening**
    - Urban greening projects that provide shaded communal spaces, such as parklets and green corridors, designed with and for women, to **improve liveability** and **social connectivity** should be implemented.
- **Water-Based Cooling**
    - Water features such as mist cooling, ponds, canals, and fountains that offer cooling effects through evaporation should be designed and constructed.

Community Engagement and Education

- **Early Warning Systems**
    - Early warning messages through **channels accessible to women**, including local networks and media, providing clear, actionable advice for heat wave preparedness should be developed and disseminated.
- **Heat Health Awareness**
    - Educational initiatives to **raise awareness about the risks of heat stress** and the importance of heat adaptability, particularly aimed at empowering women as both educators and beneficiaries should be deployed.

Investments and Economic Incentives

- **Labor Market Adaptations**
    - Workplaces should be incentivized to **adopt practices that protect workers from heat**, including for women in highly vulnerable sectors. **Shade and hydration solutions** should be provided to outdoor workers.
- **Investment in Green Infrastructure**
    - Funds should be directed toward **creating green spaces** which contribute to **urban cooling** and **bio-diversity**. It should be ensured that these spaces are **safe for women**, and are **easily accessible**, and child-friendly.

Research and Development

- **Localized Impact Research**
    - Studies should be supported to **address the knowledge gap** and increase understanding of the specific impacts of heat stress on women in various settings, to inform context-specific and tailored interventions.
- **Innovative Technologies**
    - Funds should be invested in the **research and rollout of new materials and technologies for heat adaptation** that offer sustainable, long-term solutions for heat mitigation in poor urban communities and climate-resilient agriculture technologies for rural communities.

Integrated Urban Planning

- **Wind Corridors**
    - Wind corridors should be established and preserved to **enhance natural ventilation**, reduce urban heat and improve air quality in densely populated areas.
- **Cool Public Spaces**
    - To provide relief from the heat, **shaded bus shelters**, **public parks**, and **cooling centers** should be strategically located near areas that women access such as markets, health centers, and schools.

3. Supreme Court’s Judgment on Right of Divorced Muslim Women to Maintenance

News: A 2-Judge Bench of the Supreme Court (SC) has held that a divorced Muslim woman can seek alimony from her husband under Section 125 of the Code of Criminal Code (CrPc).

How have the legal provisions related to Muslim Women's Right to Maintenance evolved?

Year	Development
1973	• **Section 125 of the CrPC** codified the laws governing maintenance for destitute wives, children, and parents. • It holds that a **divorced woman has the right to seek maintenance**/monthly allowance from her husband **until her remarriage**. • It is a religion neutral provision which was **universally applicable** to all women belonging from different religions.
1985	• In the ***Shah Bano* case**, the SC **upheld a Muslim woman's right** to seek maintenance from her divorced husband under Section 125 of the CrPC. • The verdict was perceived by some to be an affront to religious personal laws.
1986	• The **Muslim Women (Protection of Rights on Divorce) Act, 1986** was enacted to **overturn the SC verdict** in the *Shah Bano* Case. It is a **religion-specific law** that provides for a procedure for a Muslim woman to claim maintenance during divorce. • **Section 3 of the Act** ○ **Period of maintenance**: It guarantees the payment of maintenance to a divorced Muslim woman by her former husband. However, the maintenance will be provided during the period of ***iddat***. *(It is a period, usually of 3 months, which a woman must observe after the death of her husband or a divorce before she can remarry)*. ○ **Maintenance Amount**: The maintenance amount shall be equal to the amount of ***mahr*** or dowry given to her at the time of her marriage or any time after that. ○ **Recourse after the end of *Iddat* Period**: A woman can approach a first-class magistrate for maintenance in case she has not remarried and is not in a position to take care of herself financially.
2001	• In the ***Danial Latifi v. Union Of India*** (2001) case, the Constitution Bench of the **SC upheld the constitutional validity of the 1986 Act**. • However, it extended the period of maintenance beyond the completion of *iddat* till the woman can support herself or remarries.
2009	• In the ***Shabana Bano v. Imran Khan***, SC reiterated a divorced Muslim woman's right to claim maintenance under Section 125 of CrPC **until her remarriage**.
2019	• Patna HC's verdict underscored that a divorced Muslim woman has the option to avail of maintenance both under the CrPC and the 1986 Act.

What was the Question raised in the present case and what is the SC verdict?

- **Case Question**: There prevailed an ambiguity whether Muslim Women could claim maintenance rights under Section 125 of the CrPC, after claiming their rights under Section 3 of the Muslim Women (Protection of Rights on Divorce) Act, 1986.

SC Verdict

- The Muslim Women can claim remedy under Section 125 of the CrPC, despite claiming the remedies provided under Section 3 of the Muslim Women (Protection of Rights on Divorce) Act, 1986.
- The SC held that a Muslim woman's **right to claim maintenance under CrPC cannot be extinguished** even if she has claimed her rights under personal law (Muslim Women (Protection of Rights on Divorce) Act, 1986).

- A parallel remedy in law that applies universally (CrPC) cannot be taken away by religious custom despite the latter being codified as legislation.

What are the four main pillars of the SC Verdict?

- **Social justice measure must be insulated from applicable personal laws**: The SC held that Section 125 of CrPC was introduced as a measure of **social justice to protect women and children**. The provision manifested the Constitutional commitment of social justice under Article 15(3), which provided for special measures to ensure a life of dignity for women at all stages of their lives.
  - A claim under Section 125 CrPC is maintainable, irrespective of the applicable personal laws of the parties.
- **Equivalent Rights of Maintenance**: The SC held that both the secular provision of Section 125 of the CrPC and the personal law provision of Section 3 of the 1986 Act **provide equivalent rights of maintenance** in their distinct domains.
  - The SC held that passage of the 1986 Act did not 'militate against or dilute' relief under Section 125 of the CrPC. The intent of the Parliament behind the 1986 Act was to **provide an additional remedy for divorced Muslim women**.
- **Harmonious Interpretation**: The SC has held that the two conflicting statutes should be **harmoniously and purposively interpreted**. The SC has held that a divorced Muslim woman is entitled to seek recourse to either or both the provisions.
  - The **choice lies with the Muslim woman** to apply for maintenance either under Section 125 of the CrPC or the 1986 Act. If the woman is unable to provide for herself, she can seek remedy under Section 125 of the CrPC. If she is financially independent, she can seek maintenance under the 1986 Act till the expiry of the *iddat* period.
- **Muslim women divorced through triple talaq entitled to relief**: The SC has held that Muslim women who have been divorced through illegal methods such as triple talaq are **entitled to maintenance** under Section 125 of the CrPC.

What is the significance of the Verdict on Muslim Women right to maintenance?

- **Primacy of Secular Law over Personal Law**: The Judgment has firmly established that the 'religion neutral' provisions of **secular law take precedence over personal law**. The verdict reaffirms the supremacy of the Constitution and secular law in matters of gender equality.
- **Maintenance as a Right and not a Charity**: The SC has framed maintenance as a 'facet of gender parity and enabler of equality, and not charity' for all married women. This shifts the perspective from maintenance being a religious obligation to a **legal right**.
- **Benchmark for Challenging Discriminatory Practices in other Laws**: The verdict can serve as precedent to challenge discriminatory practices in other personal laws. It may **lead to more reforms** to align personal laws with Constitutional principles of equality.
- **Upholding the Constitutional Values**: The verdict protects the spirit of the Constitution and its promise of equality, guaranteed by Article 14. It further protects the emboldens the value of social justice for women provided by Article 15 (1), Article 15 (3) and Article 39 (e) of the Constitution.
- **Socio-economic Safety Net to Women**: The verdict offers a socio-economic safety net to married women who often sacrifice employment opportunities to nurture the family, pursue child rearing, and undertake care work for the elderly.

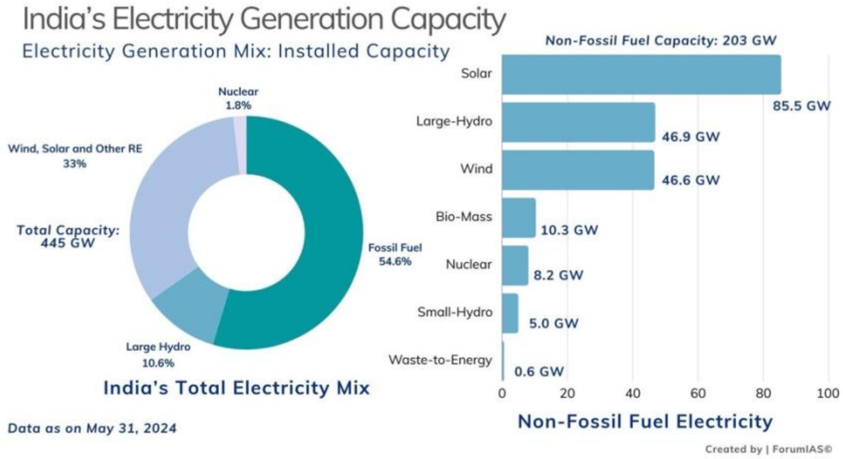
The Supreme Court's verdict is a testament to the Court's ability to employ a harmonious interpretation to broaden the scope of rights and **secularize access to remedies**. The ruling has significantly strengthened the rights of divorced Muslim women and is likely to have far-reaching implications for the future trajectory of personal laws in India. It may potentially lead to more challenges to discriminatory practices and greater alignment with the Constitution's principles of equality and justice.

4. Rising Water Stress and Status of Hydropower Generation in India

News: Erratic Rainfall and falling water level in reservoirs has impacted hydropower generation in India.

What is the current status of hydropower generation in India?

- The hydropower generation in India has declined by **17.33%** from **162.05 billion units** in FY2022-23 to **133.97 billion units** in FY2023-24.
- At present, India's **installed hydropower capacity is ~47 GW**. India's total electricity generation capacity is ~445 GW (May 2024). Hydropower constitutes **~10.6% of India's total electricity generation capacity**.



Data as on May 31, 2024

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- In 2023-24, only **60 MW of new hydropower capacity was added**. Total electricity generation capacity addition was ~26GW in 2023-24. Thus the **share of hydropower in new capacity addition was only 0.2%**.

What factors are contributing to lower hydropower generation?

- **Irregular Monsoons**: The rainfall has been **erratic over the last few seasons**. Some regions have witnessed extreme rainfall events while others have been rather dry.
  - In the Monsoon season 2023, the **rainfall was 6% below the Long Period Average** (LPA) and **31% regions in India received below average rainfall**. This has been attributed to prevailing El-Nino effect.
- **Low Reservoir Level**: According to the latest data from the Central Water Commission, live storage available in India's 150 key reservoirs was 37.662 BCM (billion cubic metres) (June 20, 2024). This is only **21% of the total live storage capacity** and **80% lower than 2023**.
  - Some major reservoirs are having water levels much below their capacity like Indira Sagar (Madhya Pradesh, 17%) and Koyna (Maharashtra, 10%). This has decreased power generation.
- **Plant Shutdowns**: Some power plants were shutdown in 2023 due to excessive flooding and cloudbursts. They have not resumed their operations yet.

What are the implications of low hydropower generation?

- The reduction in generation is being covered through **increase in thermal power generation**. The Government has been trying to reduce the dependence on coal-based power under the climate action obligations. Prolonged uncertainty in hydropower generation does not bode well for **India's energy security in the context of changing climate**.
- Increased burden on thermal power plants has led to delay in scheduled maintenance of many thermal plants. This may lead to tripping of plants leading to worsening of power crisis.
- **Disruption in Power Supply** will impact **industrial output**. Industries with high water usage may also be impacted.

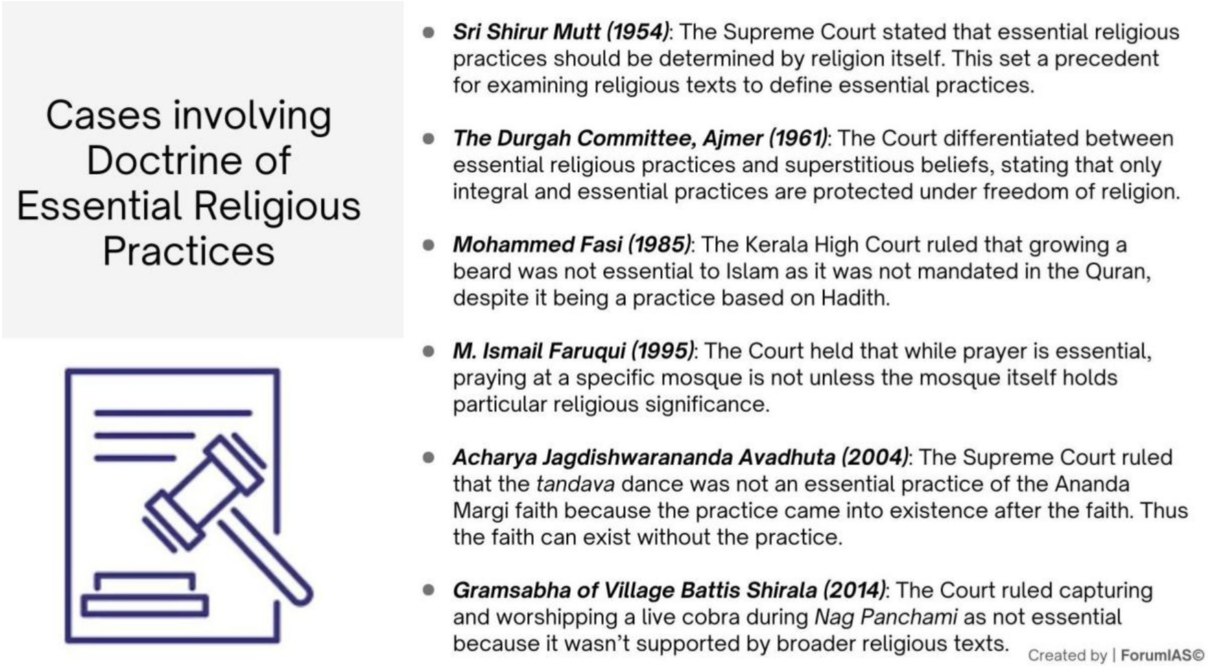
General Studies Paper II

1. Madras High Court's Judgment on *Angapradakshinam* and Essential Religious Practices

News: A Single Judge Bench of the Madras High Court has allowed the practice of *Angapradakshinam* in a temple in Karur. The practice was banned earlier by the Court in 2015.

What is the Judgment regarding *Angapradakshinam*?

- **2024 Judgment**: The Madras High Court allowed the *Angapradakshinam* practice, at the resting place of Nerur Sathguru Sadasiva Brahmendral, where individuals roll over banana leaves after meals have been consumed. This was seen as part of the devotees' **Freedom of Religion under Article 25** and the **Right to Privacy** under **Article 21**.
  - The Court observed that if the Right to Privacy includes sexual and gender orientation, it certainly includes a **person's religious orientation** also. **Article 25 (1)** of the Constitution allows the individual to carry out the religious vow undertaken.
- **2015 Judgment**: The 2024 decision reversed a 2015 ruling that had banned the practice citing potential caste discrimination. The 2015 Judgment had concerns that it predominantly involved 'lower' castes, which was seen as discriminatory.
  - However, the Judge (in 2024 Judgment) observed that **people from all castes participated** in the event at Nerur.
  - The Judge also argued that the 2015 Judgment was passed **without hearing the necessary parties** (devotees and temple trust), and hence characterized the 2015 order as "**null and void**".



Cases involving Doctrine of Essential Religious Practices

- ***Sri Shirur Mutt (1954)***: The Supreme Court stated that essential religious practices should be determined by religion itself. This set a precedent for examining religious texts to define essential practices.
- ***The Durgah Committee, Ajmer (1961)***: The Court differentiated between essential religious practices and superstitious beliefs, stating that only integral and essential practices are protected under freedom of religion.
- ***Mohammed Fasi (1985)***: The Kerala High Court ruled that growing a beard was not essential to Islam as it was not mandated in the Quran, despite it being a practice based on Hadith.
- ***M. Ismail Faruqui (1995)***: The Court held that while prayer is essential, praying at a specific mosque is not unless the mosque itself holds particular religious significance.
- ***Acharya Jagdishwarananda Avadhuta (2004)***: The Supreme Court ruled that the *tandava* dance was not an essential practice of the Ananda Margi faith because the practice came into existence after the faith. Thus the faith can exist without the practice.
- ***Gramsabha of Village Battis Shirala (2014)***: The Court ruled capturing and worshipping a live cobra during *Nag Panchami* as not essential because it wasn't supported by broader religious texts.

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What is the criticism of the Judgment?

- **Doctrine of Essentiality**: Critics argue that the Court did not rigourously examine whether the practice of *Angapradakshinam* is an essential religious practice. The essentiality test is considered pivotal in such cases.
- **Inconsistent Approach**: It highlights inconsistencies in the approach of judiciary towards the determination of essential practices, often shifting between **strict textual analysis** and **broader interpretations** based on rationality, leading to unpredictable legal standards.

  - The decision contrasts with a Supreme Court stay on a similar practice in Karnataka, stressing the need for consistent judicial approaches. (*The Madras HC has noted that the practice in Nerur involves devotees of all castes, while the SC had banned practice in Karnataka where devotees from only certain castes participated and others did not. Hence, the practice in Karnataka was considered discriminatory*).
- **Health Concerns**: Some critics say that the practice can have implications for the health of the devotees performing the ritual. The Court has seemingly overlooked this aspect.
- **Conflict Between Rights**: The case highlights the tension between religious freedoms under Article 25(1) and human dignity and equality under Articles 14 and 21.

What is the criticism of the Doctrine of Essential Practices?

- Scholars of Constitutional law have argued that the doctrine of essentiality has **lead the Court into an area that is beyond its competence**. It has given judges the power to **decide purely religious questions**.
- Over the years, Courts have been **inconsistent** on this question e.g., in ***Gandhi v. State of Bombay* (1954)**, the Supreme Court had said that **no outside authority has any right to determine the essential parts of religion**. The Court said that it is '*not open to the secular authority of the State to restrict or prohibit them in any manner they like*'.
- Experts point out that in some cases the Courts have **relied on religious texts** to determine essentiality; while in others the judgments were based on the **empirical behaviour of followers**.
- In the *Anand Marg Case*, the Court based its decision on **whether a practice existed at the time the religion came into existence**. The Court overlooked the fact that many **religious practices evolve and change over time**. The Court's approach has not been consistent.

What should be the approach?

- To ensure fairness, courts should avoid interpreting religious texts and **focus on constitutional values**. They should treat practices that align with fundamental rights and public health as essential. This approach will harmonize religious freedom with societal progress. (*Refer EPIC March 2022 for Karnataka HC Judgment on Hijab*).

2. Holding General Election in a Single Phase

News: The relatively lower turnout in the General Election 2024 has been attributed to hot weather and a prolonged election schedule. This has called for need to reduce the phases/duration of elections.

What were the reasons for a shift to multi-phase elections?

- The 2024 General Election was held in 7 phases between April 19, 2024 to June 1, 2024, spanning 44 days. Most General Elections between 1960s-1990s were completed within 10-12 days.
- However the duration of conduct of General Election has increased because:
  - To check violence during elections caused by rising muscle power.
  - The limited availability of central armed police forces required phased polling to ensure security in sensitive areas. The rising electorate (~97 crore in 2024 General Election) has increased the requirement of number of polling booths and hence the deployment of security forces.
  - Political parties supported this approach because they were concerned that local police could be influenced by political pressure.

What are the issues with multi-phase elections?

- **Heat Waves**: The General Election 2024 was held in peak summer season with many States reeling under extreme heat waves, and temperatures exceeded 45°C in many places. Some casualties were also reported. It deterred people from coming out and voting.

- **Impact of Social Media**: Multi-phase elections in today's digital age face new hurdles. The gap between phases allows swift spread of rumours, fake news, and hate speech through social media e.g., a fake video of a Union Minister on the issue of reservation was circulated. Such videos promote misinformation and can escalate communal tensions.
- The extended duration of the election received criticism from political parties, media outlets, and voters. The Chief Election Commissioner (CEC) too acknowledged the necessity for shorter elections.

What is the feasibility of 'One Election, One Phase'?

A former CEC has argued in favour of conducting General Election in one phase:

- The Election Commission of India (ECI) has introduced **vulnerability mapping** for all polling stations to **identify potential troublemakers**. Identified individuals are pursued under the CRPC with a bond for good behavior; nearly half a million have been identified recently.
- Successful efforts have been made to **seize illegal arms**. Even licensed arms are ordered to be surrendered, leading to reduced violence.
- Government officials, including the Union Home Minister, have endorsed reports of peace restored in previously unstable regions.
- There are various existing laws that can ensure peaceful elections like IPC provisions Section 295A, 153A, 499, 505, and 506 address hate speech, cyber-crimes, and defamation.
- **Section 125 of the Representation of the People Act**, **1951** addresses promoting enmity between classes during elections, with penalties of 1-3 years in prison for violations.
- A general election can be conducted in one phase with the support of 4,000-5,000 paramilitary companies, supported by increased battalions and restored peace in sensitive areas.

What is the significance of 'One Election, One Phase'?

- It will **reduce the duration of time required for deployment of paramilitary forces** and free them for peacekeeping operations in the troubled areas.
- A single phase election will **save expenses necessary for multi-phase campaigns**.
- A shorter duration of elections would mean **more time for regular governance work**.
- It will **reduce the time-window of opportunity for mischief and hate-mongering** over the social media.

Period between late February, March and early April is ideal to conduct the elections when the weather is favourable in almost all parts of India.

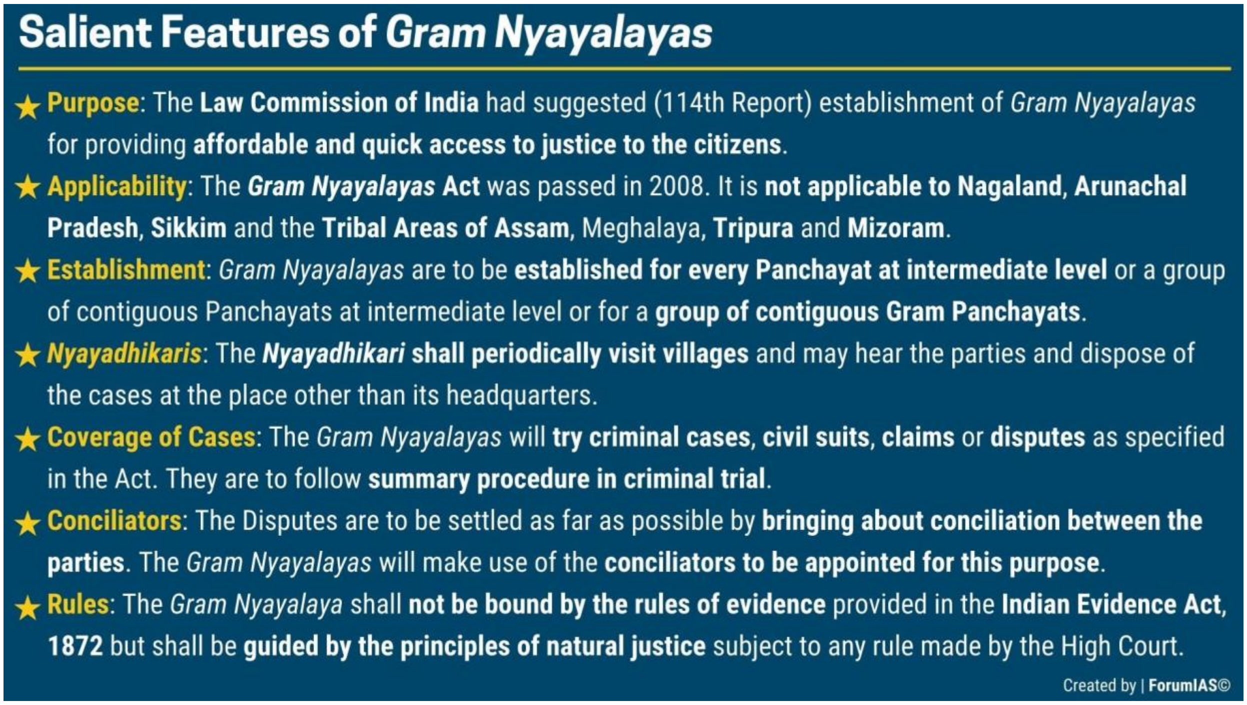
3. *Gram Nyayalayas*

News: The Supreme Court has sought report from the States and High Courts on the establishment and functioning of Gram Nyayalayas, meant to provide affordable and quick justice in rural India.

What are the concerns regarding working of Gram Nyayalayas?

- The **Gram Nyayalayas Act, 2008** was meant to de-clog courts, decentralise administration and further the rule of law.
- Only **~450 Gram Nyayalayas have been set up** of which only ~300 are functioning. However, to improve access to justice ~16,000 Gram Nyayalayas are required.
- Lack of proper functioning of Gram Nyayalayas has resulted in continuously rising judicial backlog. There are over 4 crore cases pending in trial courts. This has blocked access to speedy justice.
- In 2020, the Supreme Court had asked the States to file affidavits on the status of establishing Gram Nyayalayas. The States have not filed the affidavit even after 4.5 years. This shows **low compliance**.

- **Section 3 of the Gram Nyayalayas Act, 2008** empowers the State Governments to establish Gram Nyayalayas in consultation with the High Courts. But it is **not mandatory for the States to create Gram Nyayalayas**.
- States like Jharkhand and Bihar resisted the creation of Gram Nyayalayas in **tribal or scheduled areas**, saying local or traditional laws were predominantly followed in these areas. They do not want the 2008 Act to come in conflict with the local laws. However, the SC has observed that not all areas are tribal areas.



Salient Features of *Gram Nyayalayas*

★ **Purpose**: The **Law Commission of India** had suggested (114th Report) establishment of *Gram Nyayalayas* for providing **affordable and quick access to justice to the citizens**.

★ **Applicability**: The ***Gram Nyayalayas* Act** was passed in 2008. It is **not applicable to Nagaland, Arunachal Pradesh, Sikkim** and the **Tribal Areas of Assam**, Meghalaya, **Tripura** and **Mizoram**.

★ **Establishment**: *Gram Nyayalayas* are to be **established for every Panchayat at intermediate level** or a group of contiguous Panchayats at intermediate level or for a **group of contiguous Gram Panchayats**.

★ ***Nyayadhikaris***: The ***Nyayadhikari* shall periodically visit villages** and may hear the parties and dispose of the cases at the place other than its headquarters.

★ **Coverage of Cases**: The *Gram Nyayalayas* will **try criminal cases, civil suits, claims** or **disputes** as specified in the Act. They are to follow **summary procedure in criminal trial**.

★ **Conciliators**: The Disputes are to be settled as far as possible by **bringing about conciliation between the parties**. The *Gram Nyayalayas* will make use of the **conciliators to be appointed for this purpose**.

★ **Rules**: The *Gram Nyayalaya* shall **not be bound by the rules of evidence** provided in the **Indian Evidence Act, 1872** but shall be **guided by the principles of natural justice** subject to any rule made by the High Court.

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What should be done going ahead?

- The Supreme Court should **give directions to establish Gram Nyayalayas** within a **fixed timeframe**.
- The State Governments should take steps for **timely recruitment and training** of the **judicial officers** and other human resources for the Gram Nyayalayas.
- The State Governments should **raise awareness about the Gram Nyayalayas** among all stakeholders and their **performance should be regularly monitored**.
- The devolution from the Union to State Governments should be linked to the status of coverage and functioning of the Gram Nyayalayas.

4. The Debate on Making Education a State Subject

News: The recent controversy related to NEET and NET entrance exams has led to a debate whether Education should be transferred back to the State List.

What has been the Constitutional Arrangement with respect to Education?

- The **Government of India Act, 1935** had classified **Education as Provincial Subject**.
- The arrangement was continued after the Independence, and Education was kept as a **State Subject** in the **Seventh Schedule**.
- The **Swaran Singh Committee** was constituted during the Emergency *(Read more about the Emergency)* to provide recommendations for amendments to the Constitution. Based on recommendation of the Committee, **Education was shifted to the Concurrent List** (Item 25) through the **42nd Constitutional Amendment Act**.

- The provision of the 44th Amendment to bring back Education to the State List could not be passed in the Rajya Sabha.
- **Items 63 to 66 in the Union List** related to Central Universities, Technical Professional and Vocational Education, Determination of standards in institutions for higher education etc. have been in the Union list throughout.

What are the arguments in favour of putting Education in the State List?

- The original Constitutional scheme was to keep Education in the State list. The **makers of the Constitution** considered it more appropriate to **let States make their own educational policies**.
- The 42nd Amendment Act was passed during the Emergency **without proper deliberations in the Parliament** with the opposition parties. **States were not consulted** in this matter impacting federal relationship.
- The **States handle the major share of spending on Education**. According to an analysis, out of the total revenue expenditure by education departments in our country estimated at INR 6.25 lakh crore (2020-21), 15% is spent by the Centre while 85% is spent by the States. Even if expenditure by all other departments on education and training are considered, the share works out to **24% (Centre)** and **76% (States)** respectively.
- There are too many **cultural**, **linguistic**, **religious** and **regional diversities** in India and States should be allowed to formulate their education policies based on local socio-economic conditions. **One-size-fit-all approach may not work** in case of such diversity.
- There have been arguments that shifting education back to States may lead to 'corruption'. But the recent controversy related to NTA has demonstrated that centralization may not address this issue.

Items in the Seventh Schedule Related to Education

Union List

Item 63: Institutions of National Importance declared by the Parliament by law.

Item 64: Institutions for scientific or technical education financed by the Government of India.

Item 65: Union agencies and institutions for professional, vocational or technical training, including the training of police officers; or scientific or technical assistance in the investigation or detection of crime.

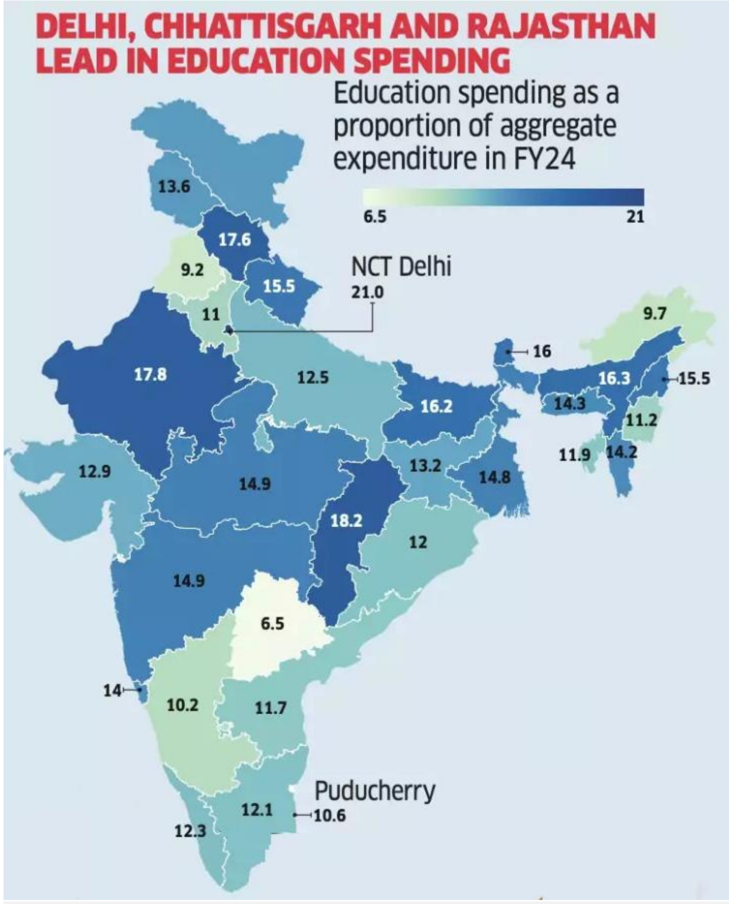
Item 66: Standards in institutions for higher education or research and scientific and technical institutions.

State List

Item 14: Agriculture education and research.

Concurrent List

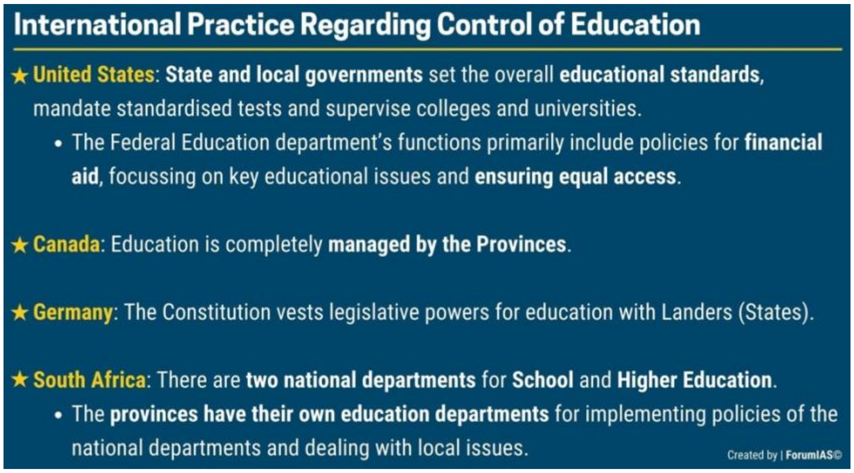
Item 25: Education, including technical education, medical education and universities, vocational and technical training of labour.



Source: Economic Times. States allocate much higher share of their total expenditure on education compared to the Union Government.

- States like Tamil Nadu have argued that **centralized exams** like NEET **take away the autonomy of the States** to regulate admission to medical educational institutions, established by the State governments. *(Read more on the issues related to NEET and NTA: Functioning and Challenges).*

What are the arguments in favour of keeping Education in the Concurrent List?



International Practice Regarding Control of Education

★ **United States**: **State and local governments** set the overall **educational standards**, mandate standardised tests and supervise colleges and universities.

- The Federal Education department's functions primarily include policies for **financial aid**, focussing on key educational issues and **ensuring equal access**.

★ **Canada**: Education is completely **managed by the Provinces**.

★ **Germany**: The Constitution vests legislative powers for education with Landers (States).

★ **South Africa**: There are **two national departments** for **School** and **Higher Education**.

- The **provinces have their own education departments** for implementing policies of the national departments and dealing with local issues.

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- Education in concurrent list can allow the Union Government to **formulate a broad policy** to **ensure uniformity in certain standards**. The States can formulate their own laws and schemes tailormade for their local conditions. This systems ensures a **broad uniformity** while **respecting the local diversities**.
- Uniformity in education standards (like syllabus) across States will ensure that **students from all State education boards have a level playing field** when attempting exams like the IIT-JEE.
- **Kothari Commission** (1964-66) had also recommended **standardization of the educational system** throughout the country (10+2+3 pattern). Such uniformity is helpful in higher education as well.
- Central Acts like **Right to Education**, **2009** has helped in widening the reach of education to the masses and has ensured a minimum level of education across India.
- The initiatives of the Union Government like the ***Samagra Siksha Abhiyan*** have led to improvement in enrolment ratio in schools. The Government provides 40% of funding for the scheme (90% for 8 North-east and 3 Himalayan States). Over the last 5 years, the Union Government has allocated 2.5-3% of its total budget expenditure to education.

What should be the way forward?

- Keeping Education under Concurrent list help ensures uniformity in educational standards at a broad level. To **address the concerns of States**, the Union Government should hold regular **discussions with the State Governments**. Their inputs should be taken into consideration while taking steps like policy formulation or decisions on curriculum framework.
- The States should have more flexibility in spending on Centrally sponsored schemes. However, to ensure quality, the **funding can be linked to outcomes**.
- The Union and State Governments also need to work together to address issues like poor learning outcomes, poor quality of teachers and infrastructure.
- A standardised National Assessment Framework alongside State-specific benchmarks (following practices of countries like Australia) should be established. This will allow for national comparisons while acknowledging regional diversities.

5. The Issue of Reservation of Jobs for Locals

News: The Karnataka Cabinet had given clearance to a Bill for reservation for locals in the jobs which has led to sharp reactions from the private sector.

What are the arguments in favour of local reservation in private jobs?

- **Protection of Right to Livelihood**: The State governments contend that the local reservation laws intend to protect the right to livelihood of people domiciled in the State.

Similar Laws by Other State Governments

Maharashtra: 2008, 80% reservation for the 'sons of the soil'.

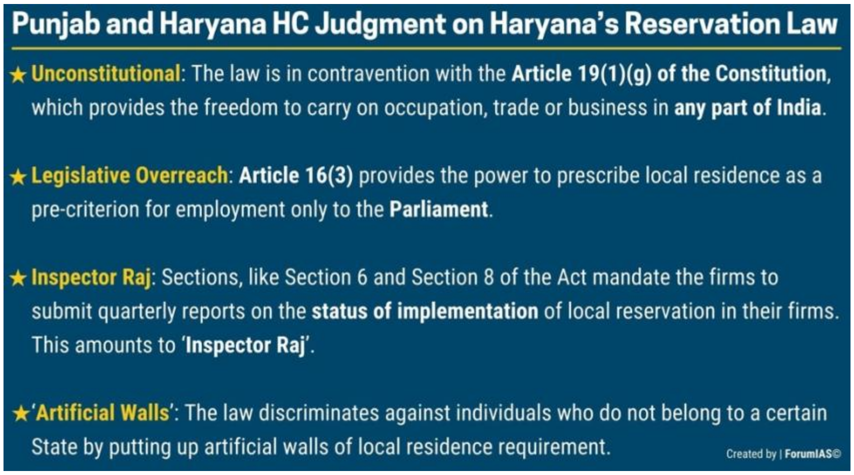
Andhra Pradesh: 2019, 75% reservation for the locals.

Haryana: 2020, 75% reservation for the locals. The law was quashed by the Punjab and Haryana High Court.

- **Constitutional Mandate of Article 16(4)**: The State Governments argue that they are empowered to provide local reservation under Article 16(4) of the Constitution. The Article stipulates that the right to equality in public employment does not prevent the State from providing reservation to any backward class of citizens which are not adequately represented.
- **Address Unemployment**: Reservation for locals will empower the local youth by giving them employment. Haryana introduced local reservation citing the highest rates of unemployment.
- **Redressal of Local Resentment**: It is considered a political step to address the resentment of locals against migrant workers taking up their jobs.
- **Legitimate Right of the State**: The States have a legitimate right to ask private sectors to adhere to the local reservation policy as the private sector utilizes public sector infrastructure.
- **Social Equality**: Local Reservation in private sector jobs is needed to achieve substantial social equality, as the proportion of public sector jobs is very low as compared to private sector jobs.
- **Exploitation of Migrant Workers**: Private employers often exploit the migrant labour market as such workers tend to work long hours for low wages with little or no social protection and benefits.
- **Global Experience**: The US (The US Civil Rights Act of 1964) and Canada (The Employment Equity Act) also provide for reservation in private jobs.

What are the arguments against local reservation in private jobs?

- **Constitutional Principles**: The Constitution prevents discrimination based on place of birth or residence (**Article 15(2) and Article 16(2)**). **Article 19** provides the freedom to move or reside in any part of India or practice any profession. Local reservation violates these principles.
  - The exception under Article 16(4) is applicable only to backward class of citizens which is not the same as place of birth or residence.



Punjab and Haryana HC Judgment on Haryana's Reservation Law

★ **Unconstitutional**: The law is in contravention with the **Article 19(1)(g) of the Constitution**, which provides the freedom to carry on occupation, trade or business in **any part of India**.

★ **Legislative Overreach**: **Article 16(3)** provides the power to prescribe local residence as a pre-criterion for employment only to the **Parliament**.

★ **Inspector Raj**: Sections, like Section 6 and Section 8 of the Act mandate the firms to submit quarterly reports on the **status of implementation** of local reservation in their firms. This amounts to **'Inspector Raj'**.

★ **'Artificial Walls'**: The law discriminates against individuals who do not belong to a certain State by putting up artificial walls of local residence requirement.

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- **Negative Effect on the Economy**: Such provisions can **decrease inter-state mobility** of skilled and unskilled labour. The shortage of qualified workers in a State may impact business units and thus the economy of the entire country.
- **Discourages Investment**: 'Compulsory and restricted' employment choices decrease the competitiveness of companies. It also discourages investment potential in a State by increasing compliance burden.
- **Hampers Inclusive Growth**: Developed States imposing 'domicile based employment restrictions' reduces job opportunities for migrant workers from the underdeveloped States like Bihar and UP.

- **Threat to National Unity**: Local reservation fuels the growth of 'Sons of Soil' feeling and breeds regionalism. It also increases friction among locals and non-locals, negatively impacting the social fabric of the nation.
- **Ceiling on Reservation**: The provision of 75% reservation goes against the SC's mandated ceiling of 50% reservation as enunciated in the *Indira Sawhney* Judgement.
- **Industrial Growth**: Majority of MSMEs and large companies in multiple sectors are dependent on migrant population. Attempts of introduction of local reservation will negatively impact the growth of this sector.
- **Competitiveness**: Private industries operating in competitive markets need the freedom to access the best talent available. Restriction of the talent pool on parochial grounds like local reservation will negatively impinge on efficiency and productivity of the private industry.

What should be the way forward?

- **Uphold Uniform Labour Rights**: States should ensure that migrant workers enjoy basic labour rights and create a level playing field for both the migrant and local workers. This will also protect the migrant labours from exploitation.
- **Focus on Development**: The State Governments must focus on economic reforms to attract industries, Skill Development Programs, Infrastructure Development, Education Reforms and Rural Development. It will help solving in the unemployment problem in the long term.
- **Judicial Guidelines**: As the SC had laid down the ceiling of reservation in public sector jobs in the *Indira Sawhney* judgement, it must also give its guidelines on the local reservation in private sector.
- '***Ek Bharat Shrestha Bharat***': The narrow parochial views of regionalism which is propagated by the local reservation laws must be countered by actively **promoting inter-state cultural interactions** through the '*Ek Bharat Shrestha Bharat*' Scheme.
- **Consultation**: The legislation providing for local reservation must be consulted in detail and a meeting with the regular stakeholders like industry bodies must be convened to arrive at a consensus.

So far, the economy of States in India have thrived on the multicultural talent that India has to offer. Restriction of employment for narrow political gains will lead to more harm than benefits.

6. Issues with the Statutory Regulatory Authorities in India

News: Statutory Regulators play a central role in maintaining sectoral integrity and consumer protection. Their actions have profound economic impact. They must possess autonomy and function transparently.

What are the issues with Statutory Regulatory Authorities (SRAs) in India?

There are over **20 Statutory Regulatory Authorities** in India overseeing sectors including finance, water, electricity, telecommunications, food safety, competition, warehousing, airports, major ports, insolvency etc. Together, these bodies **directly regulate more than 75% of India's GDP**. This shows their economic importance. However, there are various issues associated with their functioning:

- **Consolidated Powers and Economic Impact**: In India, SRAs merge legislative, executive, and judicial powers, giving them **significant authority over specific sectors**. This authority enables them to oversee and regulate entities within their jurisdiction. This enormous power can **affect private sector confidence**, potentially **slowing down innovation** and holding back India's economic growth.
- **Appointment Process**: Generally, most senior personnel in SRAs are former or current government officials. This is because the appointment process is largely controlled by the Executive Government, with limited involvement of external experts. The tenures of these appointees are **inconsistent and uncertain**.
- **Delegating Law-Making Authority to Unelected Bodies**: In democracies, elected bodies accountable to the public hold the authority to make laws. When this power is delegated to unelected bodies, rigorous safe-

guards are necessary. Many Indian laws do not outline clear procedures for regulators to exercise this authority, leading to a '**democratic and legitimacy deficit**'.

- **Lack of Accountability**: Most Indian SRAs are mainly accountable through Parliamentary oversight, which includes open discussions on their yearly performance and financial reports. However, these discussions have never taken place in the Indian Parliament for any SRA.

What should be the way forward?

- **Appointment Reforms**: There is a need to create a diverse group of subject matter experts that have predictable and fixed long tenures in regulatory bodies. This will bring in diverse industry experience which will help in developing robust regulatory guidelines.
- **Autonomy**: There is a need to align legislative provisions to empower all SRAs to regulate without dependence on Government approvals. This autonomy needs sufficient human resources and **financial independence**. However, these provisions must include **checks-and-balances to prevent abuse of power**.
- **Clear Guidelines**: Legislative guidelines should outline how regulators are to perform their executive and judicial functions.
- **Robust Accountability**: Accountability reforms should focus on certain key areas:
    - Establishing a well-structured board with clear functions and roles.
    - Introducing appeals processes at tribunals.
    - Conducting audits by the Comptroller and Auditor General of India.
    - Mandatory open discussions on their yearly performance and financial reports by the Parliamentary Committees.
- **Recommendations of Financial Sector Legislative Reforms Commission (FSLRC)**: The Commission proposed extensive governance reforms applicable to SRAs across India. It is now important to revisit and update this report to align with current requirements and promptly implement its recommendations.

7. The Debate over CBI's Jurisdiction

News: The Supreme Court has upheld the maintainability of West Bengal's lawsuit against the Union Government. West Bengal has accused the Union Government of Constitutional 'overreach' by asking CBI to register and investigate cases in the State even after the State had withdrawn the 'General Consent'.

What is General Consent?

- General Consent is a requirement under the **Section 6** of the **Delhi Special Police Establishment Act**, **1946**; the Act under which the CBI functions.
- Under **Section 5 of the Act**, the **Central Government can extend the power** and jurisdiction of the CBI to any area in a State. However **under the Section 6**, the **CBI is required to obtain consent from the concerned State Government** before initiating an investigation within its jurisdiction.
- The permission is necessary since the subjects '**Police**' and '**Public Order**' fall within the **State List** under the **Seventh Schedule of the Constitution**. However, no such prior consent is necessary in Union territories or railway areas. (*Under **Item 80 of the Union List of Seventh Schedule**, the powers and jurisdiction of members of*

Article 131: Original Jurisdiction of the Supreme Court

The Supreme Court shall, to the exclusion of any other court, have **original jurisdiction** in any dispute

- Between the **Government of India** and **one or more States**.
- Between the **Government of India** and **any State** or **States on one side** and **one or more other States on the other**.
- Between **two or more States**.

if and in so far as the dispute involves any question (whether of law or fact) on which the existence or extent of a legal right depends.

a police force belonging to any State can be extended to any area outside that State with the consent of that State).

- When a State provides a **General Consent**, the **CBI is not required to seek fresh permission from the State Government** every time it takes up a new case for investigation.
- In the **absence of General Consent**, the **CBI has to seek case-wise consent**. If the consent is not granted, the CBI officials can't investigate the case. Thus General Consent helps in quick and seamless investigations and **avoids unnecessary delays** in seeking permission from the State Governments.
- Several States like West Bengal, Punjab, Telangana, West Bengal, Jharkhand etc. have withdrawn the general consent in the recent past. *(Read more about General Consent).*

What are the arguments of the Union Government in the West Bengal Case?

- In 2021, the Government of West Bengal had filed a case in the SC under **Article 131**. The State argued that it had **withdrawn the General Consent in 2018** and since then, the CBI has registered 12 cases in the State without permission. The State Government called in **Constitutional Overreach**.
- The Union Government argued that **Article 131** deals with **disputes between the Union and States**. The CBI has registered a case, it is not a defendant in the West Bengal suit. The CBI can't be made a party as it is **not a 'State' under Article 131**.
- The Union Government further argued that the CBI was an '**independent agency**' since it did not function under the direct control of the Union government. The Union does not supervise the process of CBI's investigation, closure, filing of chargesheet etc.

What observations have been made by the Supreme Court?

- The SC said that a review of the DSPE Act indicates that the **Central Government plays a major role in the CBI's formation**, the offenses it investigates, and its powers.
- Under Section 4, the **Central Government supervises most cases**, except those under the Prevention of Corruption Act, which are overseen by the Central Vigilance Commission.
- The SC ruled that while the CBI can investigate independently, this does not reduce Central Government's control over the agency. As a result, the Solicitor General's claim that the CBI is an "independent agency" is unconvincing.

What are the long-term Implications of allowing CBI investigations without States' consent?

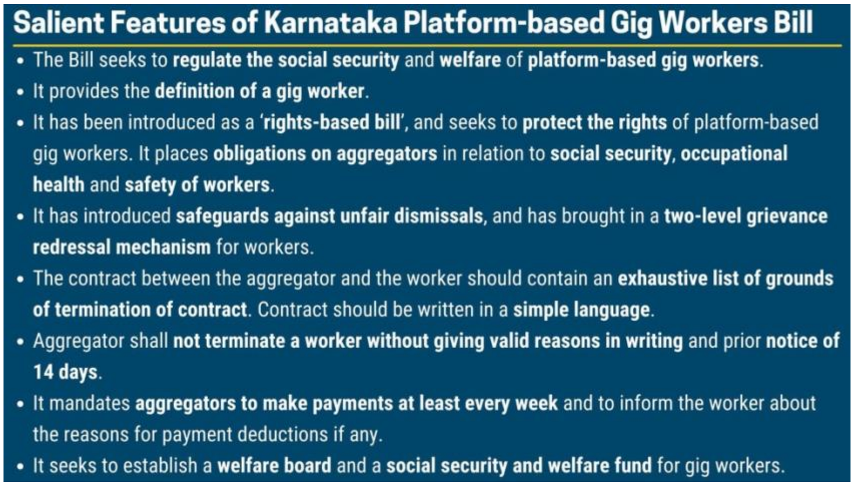
- **Impact on Centre-State Relations**: Allowing the CBI to investigate without consent, in States that have revoked their general consent would **undermine federalism**. This could harm Centre-State relations since police matters fall under State authority.
- **Future Cases**: The Supreme Court has only considered the initial objections to the West Bengal's suit. The **SC has allowed the suit and hearing will begin from August 13, 2024**. According to the experts, the final ruling will significantly affect other similar cases.

8. Issues Faced by Gig Workers

News: Karnataka has introduced the Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill. It has become 2nd State after Rajasthan to bring such legislation.

What are the challenges faced by the Gig Workers?

- **Job Security**: Most gig workers are informal/contractual workers. They are often terminated without any minimum notice. They **lack any remedy** for **wrongful termination**.
- **Social Security**: They have no health or general insurance cover.



Salient Features of Karnataka Platform-based Gig Workers Bill

- The Bill seeks to **regulate the social security** and **welfare of platform-based gig workers**.
- It provides the **definition of a gig worker**.
- It has been introduced as a **'rights-based bill'**, and seeks to **protect the rights** of platform-based gig workers. It places **obligations on aggregators** in relation to **social security, occupational health** and **safety of workers**.
- It has introduced **safeguards against unfair dismissals**, and has brought in a **two-level grievance redressal mechanism** for workers.
- The contract between the aggregator and the worker should contain an **exhaustive list of grounds of termination of contract**. Contract should be written in a **simple language**.
- Aggregator shall **not terminate a worker without giving valid reasons in writing** and prior **notice of 14 days**.
- It mandates **aggregators to make payments at least every week** and to inform the worker about the reasons for payment deductions if any.
- It seeks to establish a **welfare board** and a **social security and welfare fund** for gig workers.

  - In case of termination, they don't get severance pay or any other cushion.
- **Working Conditions**: The working conditions are unsafe and tiring e.g., food delivery personnel lack any safety provisions to deal with extreme heat waves.
  - Many gig workers have suffered fatal injuries due to unsafe driving conditions on roads.
  - They don't get paid leaves. *(Refer EPIC May 2023 for Government of Rajasthan's Bill for Gig Workers)*.
- **Low compensation**: Their salary is extremely low. Generally, the compensation is not fixed but variable and is dependent on the number of orders worked/customers handled. As a result, most gig workers are forced to work long hours (~14 hours), including during odd hours (late night).

What are the challenges in providing social security to Gig Workers?

- The platforms that employ gig workers follow a **unique business model** (gig economy). Most such platforms (like food delivery or cab aggregators) **connect supply and demand** (i.e., restaurants or cab drivers with customers). *(Refer EPIC December 2021 for Gig Economy and the Status of Gig Workers in India)*.
- The delivery partners and cab drivers are not full-time workers. They have **flexible work hours** according to their choice and **can work on multiple platforms**. In this flexible set-up, it is **difficult to design and fund a fixed-pay compensation or social security model**. Hence, their compensation is not fixed but variable.
- If the platforms are asked to hire gig-workers on a full-time basis with proper social security measures, the **whole business model can collapse**, as the platforms will not have sufficient profits to cover the costs.

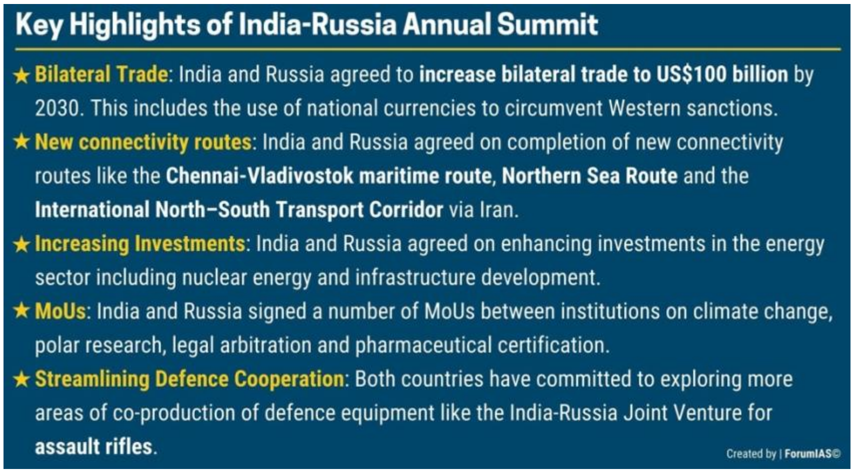
What should be done?

- **Code on Social Security 2020**: The Code has several provisions for the gig workers. However, there are some gaps e.g., it doesn't clarify how the costs of social security will be distributed among stakeholders; the gig workers, the aggregators/platforms, Union and State Governments. The Government should provide a clarity on such issues and nudge the State Governments to formulate rules to operationalize the Code. NITI Aayog has given a RAISE framework for ensuring social security to gig workers.
- **New Funding Models**: The platforms should work to develop new models to raise funds for providing insurance cover to gig workers e.g., a small charge of 1-2% of total can be levied on every order which can be used to provide insurance cover in case of injury or death on work.
- **Government Support**: The Government should work with the aggregators to educate the employees about Government welfare services like Ayushman Bharat or the Atal Pension Yojana.
  - The Government should invest in **education and training programs** for gig workers to improve their skills and increase their earning potential. *(Refer EPIC July 2022 for NITI Aayog Recommendations on Gig Economy in India)*.

9. India-Russia Relationship

News: The Prime Minister of India visited Russia. The visit is a statement to the importance New Delhi accords to its relationship with Moscow.

What are the areas of cooperation between India and Russia?



Key Highlights of India-Russia Annual Summit

- ★ **Bilateral Trade**: India and Russia agreed to **increase bilateral trade to US$100 billion** by 2030. This includes the use of national currencies to circumvent Western sanctions.
- ★ **New connectivity routes**: India and Russia agreed on completion of new connectivity routes like the **Chennai-Vladivostok maritime route**, **Northern Sea Route** and the **International North–South Transport Corridor** via Iran.
- ★ **Increasing Investments**: India and Russia agreed on enhancing investments in the energy sector including nuclear energy and infrastructure development.
- ★ **MoUs**: India and Russia signed a number of MoUs between institutions on climate change, polar research, legal arbitration and pharmaceutical certification.
- ★ **Streamlining Defence Cooperation**: Both countries have committed to exploring more areas of co-production of defence equipment like the India-Russia Joint Venture for **assault rifles**.

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Geopolitical Cooperation

- India and Russia engage regularly in regional forums like BRICS, SCO and the G20.
- India has refrained from voting against Russia in the UN on several occasions since the Ukraine war.
  - India has disregarded western threats of sanctions on oil imports from Russia.
- India and Russia champion the establishment of a **multi-polar world order**.
- India and Russia have strongly condemned terrorism in all forms and its 'safe havens'.

Defense Cooperation

- **Military Hardware and Technology Transfers**: Russia is India's largest defense supplier with equipment like T-90 tanks, Su-30 MKI aircraft; supply of S-400 Triumf mobile surface-to-air missile systems, MiG-29K aircraft, Kamov-31 helicopters; Joint development and production of military platforms like the BrahMos supersonic cruise missile. They have established Indo-Russia Rifles Private Limited (IRRPL) to produce AK-203 rifles in India under Make in India.
- **Joint Exercises**: Tri-service military exercise 'INDRA', Avia Indra joint air force exercise are undertaken.
- **Defense Collaboration**: Establishment of India-Russia Inter-Governmental Commission on Military Technical Cooperation (IRIGC-MTC) at the apex level; and 2+2 Dialogue mechanism involving the Defense and Foreign Ministers in 2021.

Economic Cooperation

- **Trade and Investment**: The bilateral trade stands ~ US$65 billion. India's imports of crude oil from Russia at a discount have surged after the invasion of Ukraine.
- **Cooperation in Russian Far East**: India has provided financial and personnel assistance to develop the resource-rich but sparsely populated Russian Far East region bordering China. A 5-year program of cooperation in the Far East for 2021-2025 is being finalized between NITI Aayog and Russia's Ministry for Development of the Far East.
- **Close Business Cooperation**: India and Russia have both institutionalised CEO's Forum. Indian companies invest in Russia, mostly in natural resources like coal, fertilizers, hydrocarbons, minerals, rare earth metals.
- **Banking and Financial Links**: India and Russia have explored on deepening banking and financial links such as Rouble-Rupee trade; and collaboration between financial institutions like SBI and VTB Bank.

Scientific and Research Cooperation

- **Civil Nuclear Energy Cooperation**: India and Russia have jointly developed the Kudankulam Nuclear Power Plant (KKNPP). India and Russia have signed agreements on the construction of 12 nuclear power plants in India in the coming decades.
- **Space Relations**: Russia and India have signed an agreement to train Indian astronauts for India's first manned space mission (Gaganyaan). C-DAC and GLONASS have signed the agreement for cooperation in technologies based on satellite navigation.
- **Health**: India had approved Russian Vaccine for COVID-19, Sputnik V, under emergency use authorization.

Diaspora and Cultural Relations

- India and Russia have a deep diaspora and cultural relation.
- **Respect for languages and Culture**: Hindi, and other languages such as Tamil, Marathi, Gujarati, Bengali, Urdu, Sanskrit and Pali are taught in Russian Institutions. Organizations like the Indian Cultural Centre in Moscow and the Indian Students' Association promote Indian culture and heritage in Russia.
- **Indian Diaspora**: The Indian diaspora in Russia is estimated to be ~30,000-40,000, which consists mostly of professionals, students and businesspersons.
- **Extension of line of Credit for Russian Far East**: India has extended $1 billion as a line of credit for the development of the Russian Far East.

What is the history of India-Russia Relations?

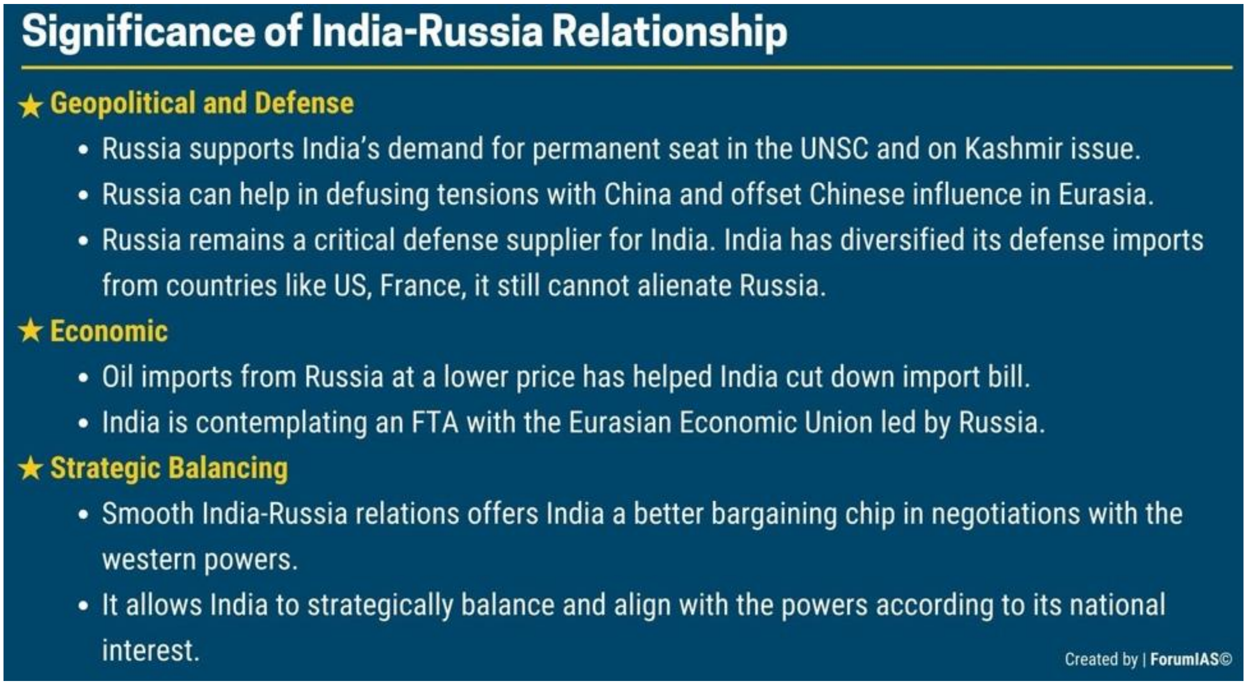
Period	Details
Early Years (1947-1955)	• Initial relations between the newly Independent India and USSR were negligible due to ideological differences. Soviet Union under **Stalin viewed India's independence movement with suspicion**. • This began to change in the 1950s, with **key visits by Indian PM Nehru** to **Moscow** in 1955 and **Soviet leader Khrushchev to India** later that year. The **steel plants** at **Bhilai** and **Bokaro** were direct outcomes of these visits.
Cold War Era (1955-1991)	• India and the USSR developed a strong strategic, military and economic relationship during the Cold War. • The **USSR became a major supplier of arms and military equipment** to India, strengthening its defense capabilities. It played a crucial role in various conflicts, including the **1971 Indo-Pak War**. • The **Treaty of Peace**, **Friendship** and **Cooperation signed in 1971** was a key milestone in India-Russia relations. It included a security provision for mutual consultations in the event of a threat to either country.
Post-Cold War (1991-2000)	• Post Cold War and the dissolution of the USSR in 1991, India-Russia **relations weakened** due to economic challenges and the changing global landscape. • The **Treaty of Friendship and Cooperation** signed in 1993 attempted to revive ties between India and Russia. However, the cooperation in most areas declined.
Phase of Strategic Partnership	• Signing of the '**Declaration on the India-Russia Strategic Partnership**' in 2000 elevated the India-Russia ties to a new level. This strategic partnership has enhanced cooperation in political, security, defense, trade, economy, science, technology and culture. • High-level engagements like the **annual India-Russia Summit** have further strengthened the relationship.

What are the challenges in the India-Russia Relationship?

- **Deepening of India-US Relations**: The India-US relations are rapidly deepening especially in the defense sector, which is exemplified in the India-US nuclear deal in 2008, the US emerging as one of the top arms supplier to India and India-US Foundational agreements such LEMOA, COMCASA, BECA.
  - Due to these developments, Russia changed their decades-old policy and start supplying China with weapon systems like Sukhoi 35 and the S-400 missile defence system.
- **Russia's growing dependence on China**: Russia and China have forged the closest possible ties in their history. This has generated fears that Russia will become a subordinate partner given the growing economic,

demographic and technological asymmetry between them. This could jeopardize Russia's neutrality on Sino-Indian tensions.

- **Russia's increased engagement with Pakistan**: Russia has been increasing its economic and defence cooperation with Pakistan, like conduction of bilateral military exercise Friendship. The RCP axis (Russia, China, Pakistan) will be detrimental to India's national interests.
- **Trade Imbalances**: Even though the bilateral trade between the two nations has increased in the face of crude oil imports, there are considerable trade imbalances between India and Russia. Of the total trade of ~US$ 65 billion, India's exports constitute ~US$ 5 billion. Trade deficit has risen to ~US$ 55-60 billion.
- **Defense Delays**: There have been considerable delays in the delivery of military spares and big-ticket weapon systems like the S-400 Triumf surface-to-air missile systems, to India due to the Ukraine War.
- **Ukraine Crisis**: The continuing Russia-Ukraine war has put India into a diplomatic tight spot. India has faced significant criticism for not strongly condemning the war and continuing energy and economic cooperation with Russia.



Significance of India-Russia Relationship

★ **Geopolitical and Defense**
- Russia supports India's demand for permanent seat in the UNSC and on Kashmir issue.
- Russia can help in defusing tensions with China and offset Chinese influence in Eurasia.
- Russia remains a critical defense supplier for India. India has diversified its defense imports from countries like US, France, it still cannot alienate Russia.

★ **Economic**
- Oil imports from Russia at a lower price has helped India cut down import bill.
- India is contemplating an FTA with the Eurasian Economic Union led by Russia.

★ **Strategic Balancing**
- Smooth India-Russia relations offers India a better bargaining chip in negotiations with the western powers.
- It allows India to strategically balance and align with the powers according to its national interest.

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What should be the way forward?

- **Neutral Player in the Resolution of Ukraine Crisis**: India must continue to maintain its positioning as a neutral player that could be a mediator between the two sides in the resolution of the Ukraine Crisis. India must continue to appeal to both sides to 'abide by the international rules and conventions'.
- **Addressing Defense Supply Chain Issues**: India and Russia must explore setting up joint venture partnerships to address the shortage of critical defense spare parts.
- **More Diplomatic and Financial Investments**: India and Russia must invest more diplomatic and financial resources to finish the pending works for the International North-South Transport Corridor. Both sides should expedite discussions on the FTA with the Eurasian Economic Union for better trade and commerce.
- **Enhanced focus on Eurasia**: India and Russia have to explore their opportunities in the Eurasian region. India can study the possibility of expanding Russia's idea of 'extensive Eurasian partnership' involving the EAEU (Eurasian Economic Union) and China, India, Pakistan, and Iran.

- **Unequivocal message to the Western countries**: India must send unequivocal message to the West that Russia occupies a pivotal place in India's strategic calculations. It must be conveyed that the West needs India just as much as India needs the West.

10. India-Bangladesh Relationship

News: The Prime Minister of Bangladesh recently visited India.

What is the significance of India-Bangladesh Relations?

- **Geo-strategic**: Bangladesh holds significant geostrategic importance for India as India's eastern neighbour. Bangladesh provides India with access to the Bay of Bengal and an important route for trade and connectivity with Southeast Asia.
- **Geo-political**: A stable and friendly Bangladesh is crucial for India's security. Geo-political cooperation on issues such as **counter-terrorism and border security** is vital for maintaining peace in South Asia. Support of Bangladesh is important in India's bid for UNSC permanent membership.
- **Economic**: Bangladesh is a critical economy for India's exports and bilateral trade. Deepening of India-Bangladesh economic relationship is crucial for India achieving its goal under the new foreign trade policy.
- **Cultural and Civilisational**: Bangladesh has a large proportion of Hindu Bengali population and a number of religious-cultural sites associated with India such as Ranir Bunglow Temple, Bhoj Vihara etc.
- **International Cooperation**: Active cooperation between India and Bangladesh is crucial to success of regional forums such as the BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) etc.

What has been the historical evolution of India-Bangladesh Relations?

Period	Details
During Bangladesh Independence (Phase of High)	• The foundation of India's relationship with Bangladesh was laid in the **1971 Bangladesh Liberation War**. • India provided critical military and material support to assist Bangladesh in its fight for independence from Pakistan. • The first Independent Government of Bangladesh, led by Sheikh Mujibur Rahman, was formed and administered from Theatre Road in Kolkata.
During the Military rule in Bangladesh (Phase of low)	• India-Bangladesh relations soured within a few years as **military regimes took control** after the assassination of Sheikh Mujibur Rahman in 1975. • There was a rise in anti-India sentiment, during the military rules of General Ziaur Rahman (1975-1981) and General H.M. Ershad (1982-1991), over issues ranging from **boundary disputes**, **insurgency** and **water-sharing**.
After the return of Parliamentary Democracy in Bangladesh in 1991 (Phase of repair and towards high)	• After the return of Parliamentary democracy in 1991 and Sheikh Hasina coming to power in 1996, India and Bangladesh scripted a new chapter of cooperation in bilateral ties with a treaty on the sharing of Ganga waters. • Since then, India and Bangladesh have built **cooperation in trade**, **energy**, **infrastructure**, **connectivity** and **defence**.

What are the areas of cooperation between India and Bangladesh?

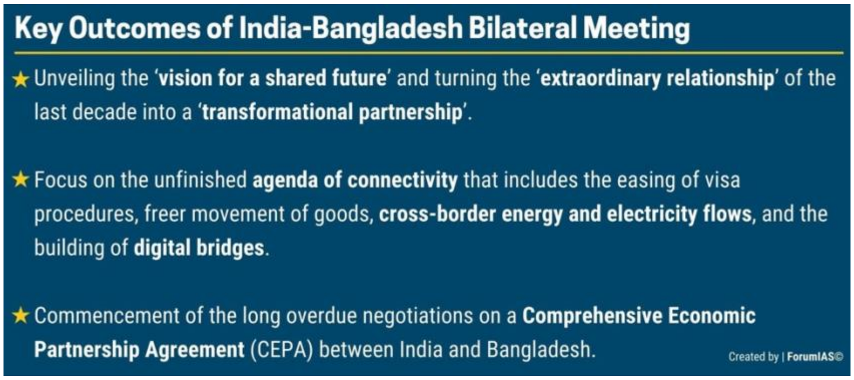
- **Political**: India and Bangladesh have maintained close political relationship, with frequent bilateral visits and close bonhomie between the Heads of the Government e.g., the PM of India attended Bangladesh's Golden

Jubilee celebrations of Independence. India awarded the **Gandhi Peace Price 2020** to **Bangladesh's founding President Sheikh Mujibur Rahman**.

- **Land Boundary Agreement (2015)**: India and Bangladesh swapped the disputed territories and allowed the inhabitants to choose their country of residence. This solved a major long-standing dispute between India and Bangladesh.
- **Economic**: Bangladesh has emerged as India's largest trade partner in South Asia. India is the second-biggest trade partner of Bangladesh.
  - The bilateral trade between India-Bangladesh has reached US$ 18 billion in 2021-2022.
  - India has provided duty-free quota access to Bangladesh on all tariff lines, except tobacco and alcohol, under **South Asian Free Trade Area** (SAFTA) since 2011.
- **Infrastructure**: India is a 'major development partner' of Bangladesh. India is funding several infrastructure and connectivity projects in Bangladesh. India has extended **Lines of Credits** worth over US$ 7 billion to Bangladesh since 2010.
- **Ahaura-Agartala rail link** connects Bangladesh and the Northeast India through Tripura. The link has given India access to Chattogram and Mongla ports in Bangladesh for the movement of cargo. It is likely to boost small-scale industries and develop Assam and Tripura.
  - '**Maitri Setu' bridge** (1.9 km long) connects Sabroom in India with Ramgarh in Bangladesh.
  - **Kolkata-Dhaka-Agartala Bus Service** (launched 2015) has reduced the distance between Kolkata and Agartala from 1,650 km (through Chicken's Neck or Siliguri corridor) to just 500 km.
- **Energy**: Bangladesh imports nearly 2,000 MW of electricity from India. The **India-Bangladesh Friendship Pipeline**, connecting Siliguri in West Bengal and Parbatipur in Bangladesh, will transport one million Metric Tonnes Per Annum (MMTPA) of High-Speed Diesel to Bangladesh.
- **Defence**: India and Bangladesh conduct joint exercises like Exercise Sampriti (Army) and Bongosagar (Navy).
- **Tourism**: People of Bangladesh make up a large portion of tourists in India. In 2017, the number of tourists from Bangladesh outnumbered all the tourists arriving from Western Europe.
  - Bangladesh accounts for more than 35% of India's international medical patients and contributes to more than 50% of India's revenue from medical tourism.

What are the challenges in India-Bangladesh Relations?

- **Transboundary River Waters**: India and Bangladesh share 54 common rivers, but only two transboundary river water sharing treaties have been signed, so far: Ganga Waters Treaty and Kushiyara River Treaty. Teesta river water dispute is a major irritant in the relationship.
- **Terrorism and Illegal Migration**: Cross-border terrorism and infiltration through the Bangladesh border including of Rohingyas have raised additional threats to internal security of India. Armed dacoity in border districts, fake currency transfer, cattle smuggling and prostitution have also raised internal security concerns in India.
- **Drug Smuggling/Trafficking**: According to the **International Narcotics Control Board** Report, drugs trafficking through India from Bangladesh, remains a **prime transit point of trafficking** heroin and other drugs from South Asia to Europe.



Key Outcomes of India-Bangladesh Bilateral Meeting

★ Unveiling the '**vision for a shared future**' and turning the '**extraordinary relationship**' of the last decade into a '**transformational partnership**'.

★ Focus on the unfinished **agenda of connectivity** that includes the easing of visa procedures, freer movement of goods, **cross-border energy and electricity flows**, and the building of **digital bridges**.

★ Commencement of the long overdue negotiations on a **Comprehensive Economic Partnership Agreement** (CEPA) between India and Bangladesh.

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- **China's Influence**: Bangladesh is an active partner in the **Belt and Road Initiative** (BRI). China has made substantial investments in Bangladesh by building 12 highways, 21 bridges and 27 power and energy projects. China's increasing involvement with Bangladesh potentially undermines India's regional standing and impede its strategic aspirations.
- **Attacks on Minorities**: The ethnic attacks on Bangla-speaking Hindus in Bangladesh has strained the India-Bangladesh people-to-people and cultural relations.

What should be the way forward?

- **Resolution of Disputes**: The early resolution of Teesta dispute is the best way to boost India-Bangladesh relations. India should be mindful of legitimate concerns of Bangladesh while securing its own interests.
- **Free Trade Agreement (FTA)**: Bangladesh is set to lose its Least Developed Country (LDC) status after 2026, thereby losing its duty-free and quota-free market access in India. An FTA would be beneficial to both India and Bangladesh. India must ensure that the FTA is not misused by China to dump goods in India if Bangladesh joins the RCEP. Bangladesh has shown an inclination to join the RCEP.
- **Smart Border Management**: There is a need to establish joint task forces comprising law enforcement agencies from both countries to effectively combat cross-border drug smuggling, human trafficking and illegal migration.
- **Digital Connectivity Corridor**: There is a need to establish a digital connectivity corridor between the two countries, focusing on high-speed internet connectivity, digital services, and e-commerce. This can create new avenues for trade, collaboration, and technological exchange.
- **Restoration of Global Image of Bangladesh**: India must help in restoring the global image of Bangladesh which has been facing US sanctions on account of 'democratic backsliding' and 'human rights violations'. India must work closely with the law enforcement agencies of Bangladesh to reduce the ethnic attacks on Bangla-speaking Hindus.

Developing the North-East India, better connectivity with South-East Asian Countries and greater integration with the Indo-Pacific region are among Government's top priorities. To achieve that, deepening of India-Bangladesh relations is a significant step.

11. Indian Migrants in Gulf Countries

News: The recent case of deaths of over 40 Indian migrant workers in a fire in Kuwait has once again brought attention to the lack of safety and deplorable living conditions of Indian migrants in the Gulf Countries.

What is the significance of Indian migrant workers for India and the Gulf Countries?

For India

- **Economic Contribution**: Remittances from Indians is a major contributor to India's foreign exchange. Remittance from GCC is ~25% of total annual remittances to India.
- **Skill Development**: Working in GCC helps Indian workers to acquire new skills and gain experience. They bring the valuable experience along with them when they come back and contribute to Indian economy.
- **India's Soft Power**: The presence of a large Indian diaspora in GCC strengthens diplomatic and trade relations. The diaspora serves as a bridge for cultural exchange, investment, and business partnerships.

For Gulf Countries

- **Labor Supply**: Indian migrant workers fulfil labour shortages in various sectors of the Gulf economies especially in construction, infrastructure, healthcare, hospitality, and domestic services. In Kuwait Indian workers constitute ~20% of the workforce.
- **Diversity and Multi-culturalism**: The presence of Indian migrant workers adds to the cultural diversity of Gulf countries, enriching society through the exchange of customs, traditions, languages, and cuisine.

- **Economic Growth**: Indian migrant workers help Gulf countries grow economically by boosting important industries, creating jobs for locals, and increasing consumer spending.

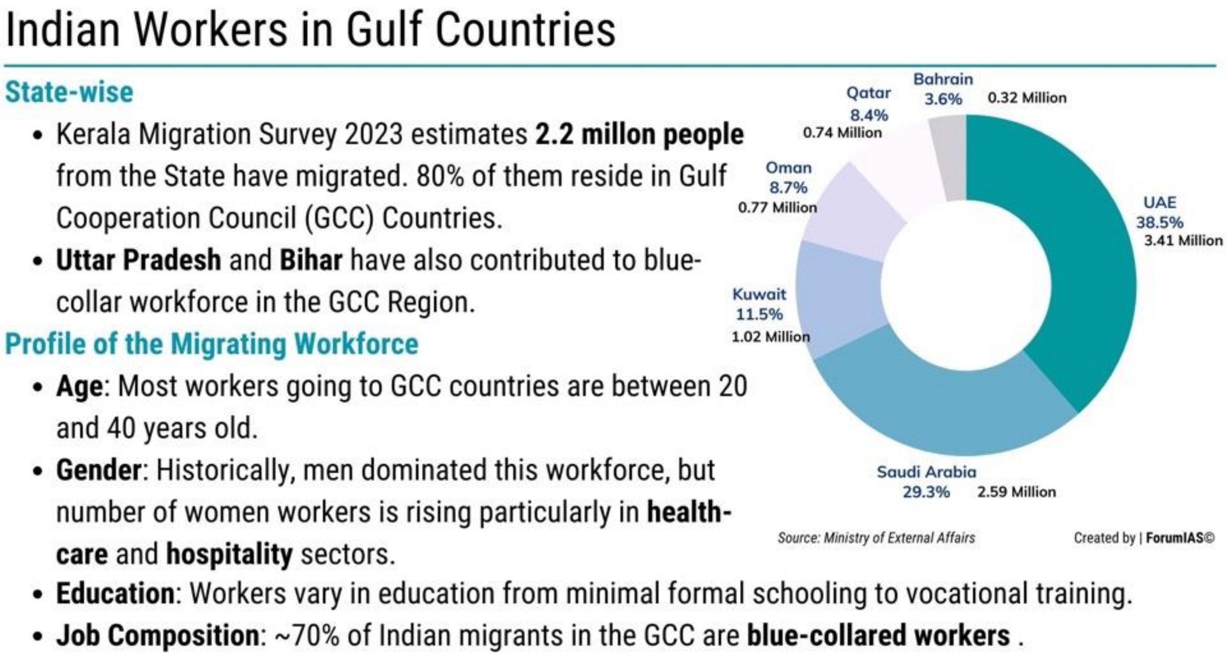
What initiatives have been taken by the Government for Migrant Workers?

Initiative	Details
Emigration Act	• The **Emigration Act**, **1983** provides the legal framework to regulate emigration of Indian workers. • It **mandates recruitment agencies** to **register and follow regulations** on emigration procedures.
e-Migrate System	• It is an **online system** that facilitates skilled and semi-skilled workers to get **emigration clearances** and track their immigration status. • It **prevents exploitation** by recruiting agents and unregistered sub-agents.
Labor Mobility Partnerships	• India has signed several **labour agreements** and Memorandums of Understanding (MoUs) with GCC nations like UAE, Saudi Arabia, Kuwait, Bahrain to **enhance protection for workers**. • These agreements cover areas like **employment contracts**, model labour policies and **worker rights**.
Pre-Departure Orientation Programs (PDOS)	• It focuses on **improving the soft skills** of Indian migrant workers, especially those heading to the Gulf region and Malaysia. • This includes understanding the culture, language, traditions, and local laws of the destination country.
Indian Community Welfare Fund (ICWF)	• It has been established to provide **emergency financial support** to Indian workers in distress abroad. • It can be used for **repatriation**, **legal assistance**, **accommodation** in shelters, and **medical assistance**.
Indian Workers Resource Centre	• It has been set up at **Dubai** and four more IWRCs have been approved in **Sharjah** (UAE), **Riyadh** and **Jeddah** (Kingdom of Saudi Arabia) and **Kuala Lumpur** (Malaysia), to provide **guidance and counselling** on all matters pertaining to overseas Indian workers.
Awareness Campaign	• A campaign called '***Surakshit Jaaye Prasikshit Jaaye***' (Go Safe, Go Trained) was launched to promote safe and legal migration.

What are the challenges faced by the Indian workers in Gulf countries?

- **Exploitation and Racism**: Migrants, particularly low-skilled or unskilled, experience exploitation from employers who might hold back their pay, offer inadequate working conditions, or disregard labour rights.
  - There are reported incidents of discrimination and racism, both within the workplace and in the society.
- **Recruitment Malpractices**: Recruitment agents charge exorbitant fee, provide false information about wages and job roles etc. Employers often confiscate passports of the workers leaving them at their mercy.
- **Poor Working Conditions**: Migrants often live in overcrowded and substandard accommodations, which can have negative impacts on their health and well-being. The accommodation lack proper safety measures as indicated by deaths of migrant workers in Kuwait fire incident.
- **Lack of Data and Monitoring**: There is a lack of data on migrants, both at their origin and destination countries which acts as a major challenge in addressing their issues or acting in time of distress like war.
- **Redressal Mechanisms**: Extended legal procedures, associated costs and absence of legal aid or remedies compounds the challenges faced by the migrant community.

- **Language Barriers**: Language and communication barriers can pose challenges in integration with local communities which leads to social isolation.



Indian Workers in Gulf Countries

State-wise

- Kerala Migration Survey 2023 estimates **2.2 millon people** from the State have migrated. 80% of them reside in Gulf Cooperation Council (GCC) Countries.
- **Uttar Pradesh** and **Bihar** have also contributed to blue-collar workforce in the GCC Region.

Profile of the Migrating Workforce

- **Age**: Most workers going to GCC countries are between 20 and 40 years old.
- **Gender**: Historically, men dominated this workforce, but number of women workers is rising particularly in **health-care** and **hospitality** sectors.
- **Education**: Workers vary in education from minimal formal schooling to vocational training.
- **Job Composition**: ~70% of Indian migrants in the GCC are **blue-collared workers** .

Source: Ministry of External Affairs

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What should be the way forward?

- **Strengthening Legal Frameworks**: India should work towards finalizing and implementing the draft Emigration Bill 2023 to provide a stronger legal framework to protect migrant workers' rights.
- **Improving Regulation of Recruitment Agents**: There should be **strict monitoring and regulation** of recruitment agents in India to prevent exploitation like charging exorbitant fees, contract violations etc.
  - Registration with the eMigrate system should be made mandatory for all migrant workers.
- **Grievance Redressal Mechanisms**: There is a need to expand the scale and effectiveness of initiatives like the MADAD portal for workers to file complaints.
- **Enhance Diplomatic Efforts**: The Government should engage in dialogue with Gulf countries to advocate for the rights of Indian migrant workers and promote bilateral agreements that protect their rights and provide avenues for legal recourse.
- **Global Platforms for Advocacy**: If bilateral diplomatic efforts don't work, India could consider making careful statements at the United Nations Human Rights Council's review sessions.
  - India can push for change by referencing international agreements like the UN Human Rights Convention and the ILO's Declaration on Workers' Rights.
  - India can also use reports from organizations like the ILO to highlight key issues, such as the need for better protection for workers in sectors like agriculture and domestic work in Saudi Arabia.
- **Welfare Measures**: There is a need to enhance budgetary allocations for the **Indian Community Welfare Fund** to provide more emergency assistance. More Indian Workers Resource Centers in Gulf nations should be set up to provide support services.
- **Skill Development**: The Government should offer skill training and certification programs for prospective migrant workers. This can improve their employability and access to skilled job opportunities.

General Studies Paper III

1. Economic Survey 2023-24: Key Highlights

News: The Economic Survey 2023-24 was tabled in the Parliament.

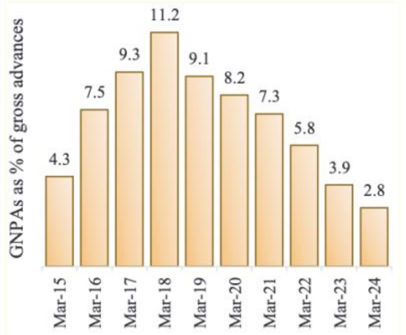
STATE OF THE ECONOMY

- **Diverging Global Growth Patterns**: Global economy grew by 3.2% in 2023 (World Economic Outlook). However, diverging growth patterns have emerged among countries. The difference in the growth performance of countries has been on account of **domestic structural issues**, uneven exposure to **geo-political conflicts** and the impact of **monetary policy tightening**.
- **India's Growth**: Indian economy has grown despite external challenges and has recovered well post-pandemic. The real GDP in FY2023-24 was 20% higher than in FY2019-20.
  - India's real GDP grew by 8.2% in FY2023-24. Economic Survey conservatively projects a real GDP growth of 6.5–7% for FY2024-25.
- **Inflation**: With deft management of administrative and monetary policies, retail inflation reduced from 6.7% in FY2022-23 to 5.4% in FY2023-24.
- **Current Account Deficit (CAD)**: The CAD in 2023-24 has dropped to 0.7% of the GDP from 2% in 2022-23.
- **Tax Collection**: 55% of tax collected accrued from direct taxes and remaining 45% from indirect taxes.

MONETARY MANAGEMENT AND FINANCIAL INTERMEDIATION

- **Steady Inflation**: RBI has maintained a steady policy rate throughout the year with overall inflation rate under control. Monetary Policy Committee (MPC) maintained the status quo on the policy repo rate at 6.5% in 2023-24. Inflation has been made to gradually align with its target while supporting growth.
- **Banking Sector**: Banking credit has witnessed double-digit growth. NPAs are at their lowest in years. The asset quality has improved highlighting Government's commitment to a healthy and stable banking sector.
  - Credit disbursal by Scheduled Commercial Banks (SCBs) stood at INR 164.3 lakh crore, growing by 20.2% at the end of March 2024.
  - The growth in broad money was 11.2% (YoY) as on March 22, 2024, compared to 9% a year ago.
- **Financial Sector**: India's market capitalisation to GDP ratio is the 5th largest in the world. However, the Survey warns it can be a sign of **market instability** (rather than economic sophistication or market resilience).
  - Primary capital markets facilitated capital formation of INR 10.9 lakh crore during FY2023-24 (~29% of the Gross Fixed Capital Formation of private and public corporates).
- **Insurance and Microfinance Sector**: India is poised to emerge as one of the fastest-growing insurance markets in the next decade. Indian microfinance sector emerges as the 2nd-largest in the world after China.

Chart II.7a: Decline in GNPAs of SCBs



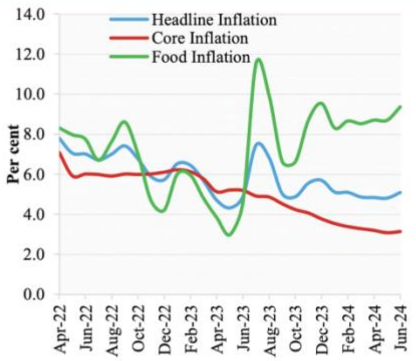
Source: Economic Survey. The Gross NPAs have fallen to 2.8% in 2023-24 from 11.2% in 2017-18.

PRICES AND INFLATION

- Central Government's timely policy interventions and RBI's price stability measures have helped maintain retail inflation at 5.4%; the lowest level since the pandemic. Central Government announced price cuts for LPG, petrol, and diesel. As a result, retail fuel inflation has stayed low.

- **Food Inflation**: Agriculture sector faced challenges due to **extreme weather events**, **depleted reservoirs**, and **crop damage**, which impacted farm output and food prices. Food inflation stood at 6.6% in 2022-23 and increased to 7.5% in 2023-24. Government took appropriate administrative actions, including **dynamic stock management**, open market operations, subsidised provision of essential food items and trade policy measures, which helped in mitigating food inflation.
- **Projected Inflation**: RBI projects inflation to fall to 4.5% in 2024-25 and 4.1% in 2025-26, assuming normal monsoon and no external or policy shocks. IMF forecasts inflation of 4.6% in 2024 and 4.2% in 2025 for India.

Chart I.52: Declining core inflation but volatile food inflation



Source: Economic Survey. Core Inflation (total – food/fuel) has remained much below the headline (total) and food inflation.

EXTERNAL SECTOR

- India's external sector remained strong amidst **on-going geopolitical headwinds** (*events that oppose growth or forward motion*) accompanied by **sticky inflation**.
- **Exports**: India is gaining market share in global exports of goods and services. Its share in global goods exports was 1.8% in 2023-24, against an average of 1.7% during 2015-16 to 2019-20. India's services exports grew by 4.9% to US$ 341.1 billion in 2023-24, with growth largely driven by IT/software services and 'other' business services. The moderation in merchandise imports and rising services exports have **improved India's current account deficit** which narrowed to 0.7% in FY2023-24.
- **Remittances**: India is the top remittance recipient country globally, with remittances reaching a milestone of US$ 120 billion in 2023.
- **External Debt**: India's external debt has been sustainable over the years, with the **external debt-to-GDP ratio** standing at 18.7% at the end of March 2024.

MEDIUM-TERM OUTLOOK

- For Indian economy to grow at 7%+, a tripartite compact between the Union Government, State Governments and the private sector is required.
- ***Amritkal's* Growth Strategy**: The growth strategy is based on **6 key areas**: Boosting private investment, expansion of MSMEs, agriculture as growth engine, financing green transition, building capacity of States, and bridging education-employment gap.
- **Policy Focus**: The key areas of policy focus in the short to medium term should be job and skill creation, tapping the full potential of the agriculture sector, addressing bottlenecks faced by MSMEs, managing India's green transition, deftly dealing with the Chinese conundrum, deepening the corporate bond market, tackling inequality and improving young population's quality of health.

CLIMATE CHANGE AND ENERGY TRANSITION

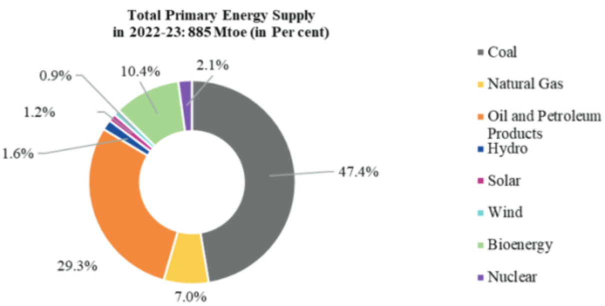
- A report by the International Finance Corporation recognises India's efforts to achieve committed climate actions, highlighting that it is the only G20 nation in line with 2°C warming limit.
- **GDP and Emissions**: India's GDP between 2005 and 2019 has grown with a Compound Annual Growth Rate (CAGR) of about 7%, whereas the emissions grew at a CAGR of about 4%.
- **Renewable Energy Capacity**: India has made significant progress on climate action in terms of an increase in its **renewable energy capacity** and **improvement in energy efficiency**. As of May 2024, the share of non-

fossil sources in the installed electricity generation capacity has reached 45.4%. India has reduced the emission intensity of its GDP from 2005 levels by 33% in 2019.

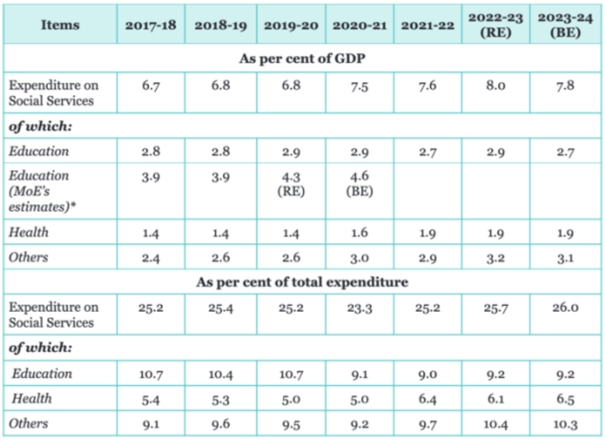
SOCIAL SECTOR

- **New Welfare Approach**: The new welfare approach focuses on increasing the impact per rupee spent. The digitisation of healthcare, education and governance has been a **force multiplier** for every rupee spent on a welfare programme.
- **GDP growth and Welfare Expenditure**: Between 2017-18 and 2023-24, nominal GDP has grown at a CAGR of ~9.5% while the welfare expenditure has grown at a CAGR of 12.8%.
- **Gini Coefficient**: India's Gini coefficient (indicator of inequality), has declined from 0.283 to 0.266 (rural) and from 0.363 to 0.314 (urban).
- **Healthcare and Nutrition**: More than 34.7 crore Ayushman Bharat cards have been generated, and the scheme has covered 7.37 crore hospital admissions. To ensure robust mental health, 22 mental disorders are covered under the Ayushman Bharat – PMJAY health insurance.
- '*Poshan Bhi Padhai Bhi*' programme for early childhood education aims to develop the world's largest, universal, high-quality pre-school network at *Anganwadi* Centres.

Chart VI.1: India's Primary Energy Supply Mix in 2022-23



Source: Economic Survey. India's Energy Mix (different from Electricity Mix) is still heavily dependent on fossil fuels (83.7%; Coal, Oil, Natural Gas).



Items	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23 (RE)	2023-24 (BE)
As per cent of GDP							
Expenditure on Social Services	6.7	6.8	6.8	7.5	7.6	8.0	7.8
of which:							
Education	2.8	2.8	2.9	2.9	2.7	2.9	2.7
*Education (MoE's estimates)**	3.9	3.9	4.3 (RE)	4.6 (BE)			
Health	1.4	1.4	1.4	1.6	1.9	1.9	1.9
Others	2.4	2.6	2.6	3.0	2.9	3.2	3.1
As per cent of total expenditure							
Expenditure on Social Services	25.2	25.4	25.2	23.3	25.2	25.7	26.0
of which:							
Education	10.7	10.4	10.7	9.1	9.0	9.2	9.2
Health	5.4	5.3	5.0	5.0	6.4	6.1	6.5
Others	9.1	9.6	9.5	9.2	9.7	10.4	10.3

Source: Economic Survey. Trend in Social Sector Expenditure by the Government (Union + States).

- **Education and R&D**: *Vidyanjali* initiative has played a crucial role in enhancing educational experiences of over 1.44 crore students by facilitating community engagement and through volunteer contributions.
    - The rise in enrolment in higher education has been driven by underprivileged sections such as SC, ST and OBC, with a faster growth in female enrolment across sections, witnessing 31.6% increase since 2014-15.
    - India is making rapid progress in R&D, with nearly 1 lakh patents granted in 2023-24, compared to less than 25,000 patent grants in 2019-20.

EMPLOYMENT AND SKILL DEVELOPMENT

- **Decline in Unemployment**: Labour market indicators have improved in the last 6 years, with the unemployment rate declining to 3.2% in 2022-23. According to PLFS, youth (age 15-29 years) unemployment rate has declined from 17.8% in 2017-18 to 10% in 2022-23. The female labour force participation rate (FLFPR) has been rising for 6 years.
- **Future Jobs**: Indian economy needs to generate an average of ~ 78.5 lakh jobs annually until 2030 in the non-farm sector to cater to the rising workforce. Compared to 50.7 crore persons in 2022, the country would need to care for 64.7 crore persons in 2050.

AGRICULTURE AND FOOD MANAGEMENT

- **Key Growth Metrices**: Agriculture and allied sectors registered an average annual growth rate of 4.18% (real) over the last five years. As of January 2024, the total credit disbursed to agriculture amounted to INR 22.84 lakh Crore. Banks issued 7.5 crore Kisan Credit Card (KCC) with a limit of INR 9.4 lakh crores. 90.0 lakh hectares have been covered under micro irrigation in the country under the Per Drop More Crop (PDMC) from 2015-16 to 2023-24.
- **R&D**: It is estimated that for every rupee invested in agricultural research (including education), there is a payoff of INR 13.85.

INDUSTRY

- **Growth rate**: Economic growth of 8.2% was supported by an industrial growth rate of 9.5%. Despite disruptions, the manufacturing sector achieved an average annual growth rate of 5.2% in the last decade with the major growth drivers being chemicals, wood products and furniture, machinery, transport equipment and pharmaceuticals.
- India's pharmaceutical market stands as world's 3rd largest by volume with the valuation of US$ 50 billion. India is the world's 2nd-largest clothing manufacturer and one of the top five exporting nations.
- **PLI Schemes**: PLI schemes have attracted over INR 1.28 lakh crore of investment until May 2024, which has led to production/sales of INR 10.8 lakh crore and employment generation (direct and indirect) of over INR 8.5 lakh.

SERVICES

- **Service Sector GVA**: Services sector contribution to the overall Gross Value Added (GVA) has reached the level prior to pandemic i.e. ~55%. The services sector has the highest number of active companies (65%). A total of 16,91,495 active companies exist in India as of March 2024. Globally, India's services exports constituted 4.4% of the world's commercial services exports in 2022.
- **Service Sector Industries Status**
  - Tourism industry witnessed over 92 lakh foreign tourist arrivals in 2023, implying a YoY increase of 43.5%.
  - In 2023, residential real estate sales in India were at their highest since 2013, witnessing a 33% YoY growth, with a total sale of 4.1 lakh units in the top 8 cities.
  - Global Capability Centres (GCCs) in India have grown significantly, from over 1,000 centres in 2014-15 to more than 1,580 centres by 2022-23.
  - The Indian e-commerce industry is expected to cross US$ 350 billion by 2030.

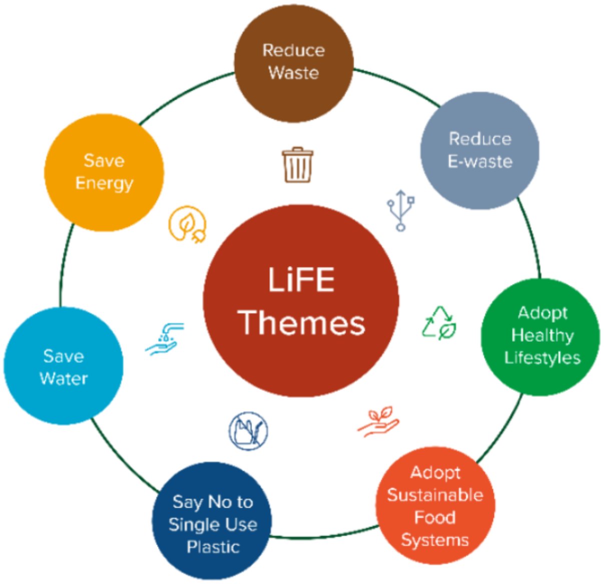
INFRASTRUCTURE

- Buoyant **public sector investment** has had a pivotal role in **funding large-scale infrastructure projects** in the recent years.
- The average pace of **construction of National Highways** increased by nearly 3 times from 11.7 km per day in 2013-14 to **~34 km per day in 2023-24**.
- Capital expenditure on Railways has increased by 77% in the past 5 years, with significant investments in the **construction of new lines**, **gauge conversion** and **doubling**. Indian Railways will introduce Vande metro trainset coaches in 2024-25.
- In 2023-24, **new terminal buildings at 21 airports** have been operationalised which has led to an overall **increase in passenger handling capacity** by approximately 62 million passengers per annum.

CLIMATE CHANGE AND INDIA

- Current global strategies for climate change are **flawed** and **not universally applicable**. The Western approach **does not seek to address the root of the problem**, i.e. **overconsumption**, but rather chooses to substitute the means to achieve over-consumption.
- A one-size-fits-all approach will not work, and developing countries need to be free to **choose their own pathways**.
- India's ethos emphasize a **harmonious relationship** with nature, in contrast to the culture of over consumption in other parts of the developed world. Shift towards the 'traditional multi-generational households' would create the pathway towards sustainable housing.
- '**Mission LiFE**' focuses on **human-nature harmony** promoting **mindful consumption** instead of over consumption that lies at the root of global climate change problem.

Chart XIII.10: LiFE Themes



Source: Economic Survey. Themes of Mission LiFE.

What concerns have been raised by the Economic Survey?

- **FDI may remain low** because of high interest rate in the developed countries.
- **Excess capacity in China** and **protectionist policies in developed countries** will pose a challenge to India's exports. **Geopolitical uncertainties** further complicate the circumstances.
- **India's dependence on Chinese imports** in the pharmaceuticals and renewable energy sector remains high.
- **Private investment in India has remained low** despite strong balance sheets of the corporate along with fall in the NPAs. Private sector is wary of investment due to **tepid domestic demand**.
- The **rise of AI** could disrupt several sectors and impact the livelihoods, especially in services.
- **Lifestyle and dietary choices** can **undermine public health** and **productivity**, which can impact India's growth potential.

What solutions have been suggested to address these challenges?

- The **private sector** has witnessed rising profits. The sector **should take-up a bigger role in creating jobs**.
- Government should **undertake reforms** to reduce regulatory burden on the MSMEs.
- There is a need to **adopt traditional lifestyles practices** and healthy food habits.
- Government should **revitalize the farm sector** by reforming agriculture policies. Focus should be on creating opportunities in food processing and enhancing food exports. This will boost farm incomes.

2. Financial Stability Report by the RBI

News: The RBI has released the 29th Financial Stability Report.

What is the Financial Stability Report (FSR)?

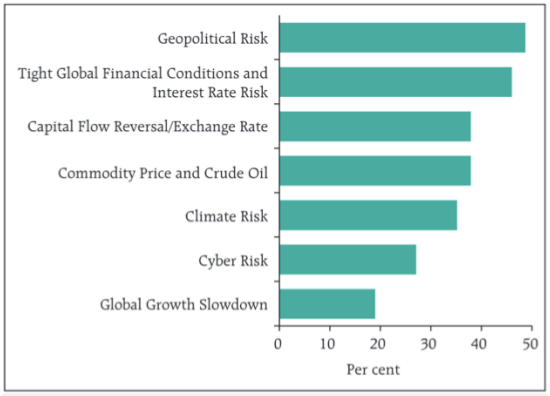
- Financial Stability Report is released by the RBI **twice a year**.
- It reflects the collective assessment of the Sub-Committee of the **Financial Stability and Development Council** (FSDC) on **risks to financial stability** and the **resilience of the financial system**.

- It is prepared after taking into account the contributions from all the financial regulators.
- RBI conducts a **Systemic Risk Survey** (SRS) as part of the FSR. The opinions of experts and market participants are taken to assess the financial system on **5 different types of risks**. The evaluated risks are Global, General, Financial, Institutional, and Macroeconomic.

What are the key highlights of the Financial Stability Report?

- The Indian economy has exhibited resilience and remains the fastest growing major economy despite the **uncertain international economic and financial environment**.
    - Moreover, India's contribution to global growth is rising and currently stands at 18.5% in 2023-24.

Chart 1.93: Potential Risks to Financial Stability



Source: RBI FSR. Potential Risks to Financial Stability according to the Systemic Risk Survey.

Banking System

- The Scheduled Commercial Banks (SCBs) have shown remarkable improvement in **profitability** and **asset quality**.
- **Improved Asset Quality**: The asset quality of SCBs recorded sustained improvement and their Gross NPA ratio moderated to a 12-year low of 2.8% in March 2024. The decline has been observed across public, private and foreign banks.
- **Increased Profitability**: The **Return on Assets** (RoA) and **Return on Equity** (RoE) have increased to 1.3% and 13.8%, respectively.
- **Capital Buffers**: The **Capital to Risk-weighted Assets Ratio** (CRAR) and the **Common Equity Tier 1** (CET1) ratio stand at 16.8% and 13.9%, respectively. This is well above the regulatory minimum set by the RBI.
- **Positive Stress Test Results**: The stress tests conducted to gauge the strength of bank balance sheets reveal that SCBs are **well capitalised** and **capable of absorbing macroeconomic shocks** even in the absence of any further capital infusion by stakeholders.

Non-Banking Financial Companies (NBFCs)

- **Robust Credit Growth**: NBFCs maintained robust credit growth in 2023-24. Personal loan growth decelerated whereas **growth in loans to industry and services accelerated**. Credit growth in respect of the largest category of NBFC by activity, investment and credit companies (NBFC-ICCs), has been accelerating in the post-pandemic period.
- **Healthy Asset Quality**: The asset quality of the NBFCs remains healthy. It has a CRAR at 26.6%, GNPA ratio at 4.0% and return on assets (RoA) at 3.3%.

What are the risks highlighted by the Financial Stability Report?

- **Global Economic Headwinds**: The global economy is facing heightened risks from prolonged geopolitical tensions, elevated **public debt**, and a slow progress in the **last mile of disinflation** (i.e., rate of inflation is falling, but at an increasingly slower pace). These headwinds pose challenges to the growth and stability of India's financial sector.
- **Increasing Cyber Risks**: With rapid digitalisation of financial services, the recurring intensity of cyber-attacks has dominated financial stability concerns. The number of publicly reported cyberattacks has been rising globally at an alarming pace, and share of **attacks in the financial domain is increasing rapidly**.
- **Domestic Risks**: Disruption of supply-chains, rise in commodity prices, slack in the rural economy and uncertainties related to weather conditions are the prominent domestic risks to the financial sector.

  - Despite stricter regulations, the **heavy borrowing by NBFCs** from banks poses a systemic risk.
  - The activities of NBFCs involve maturity transformation, where they **fund long-term loans with short-term borrowings**. This can lead to instability if there are sudden shifts in market conditions.
- **Interconnectedness and Contagion Risk**: Due to increasing interconnectedness, the share of interbank exposures in the total assets of the banking system has reached a 3-year peak in September 2023. This makes the Indian **financial system susceptible to contagion risk**.
- **Risks in the Unsecured Retail Loan Segment**: There has been a rapid growth in the **unsecured retail loan segment**. It has seen 23% growth in the last two years compared to 12-14% overall credit growth. This growth in the unsecured loan segment creates substantial risks for the stability of Indian financial sector. (*Unsecured retail loans do not have a collateral. So, in case of default, the banks do not have the recourse to recover the loan amount by seizing the collateral. Hence, Banks face higher risk in unsecured loans*).

What initiatives have been taken by the RBI for the stability of the Indian Financial System?

Initiative	Details
Strengthening Banks' Internal Surveillance	• The RBI has advised banks and NBFCs to strengthen their internal surveillance mechanisms to address the build-up of risks in the rapidly growing unsecured retail loan segment.
Revised Prudential Framework on Stressed Assets	• The revised prudential framework on stressed assets issued by the RBI on June 7, 2019 extends the stressed asset resolution framework. It also builds in incentives for early adoption of a resolution plan.
Large Exposures Framework	• RBI introduced a revised large exposures framework (LEF) to address **counterparty concentration risk** in the banking sector.
Supervisory Mechanism for Banks	• RBI has recently reviewed the structure of supervision in the context of the growing diversity, complexities and interconnectedness within the Indian financial sector.
Dedicated Cloud Facility	• The RBI announced the establishment of a dedicated cloud facility for the financial sector in India to help banks and financial entities manage the ever-increasing volume of data.

The RBI must remain committed to **promote innovation**, **financial inclusion**, **efficient payment** and **settlement systems**, and a robust financial system. All stakeholders must invest adequately to take full advantage of technological advancements like AI. However, they must also **take steps to safeguard the security and soundness of their systems**.

3. Improving the Manufacturing Sector in India

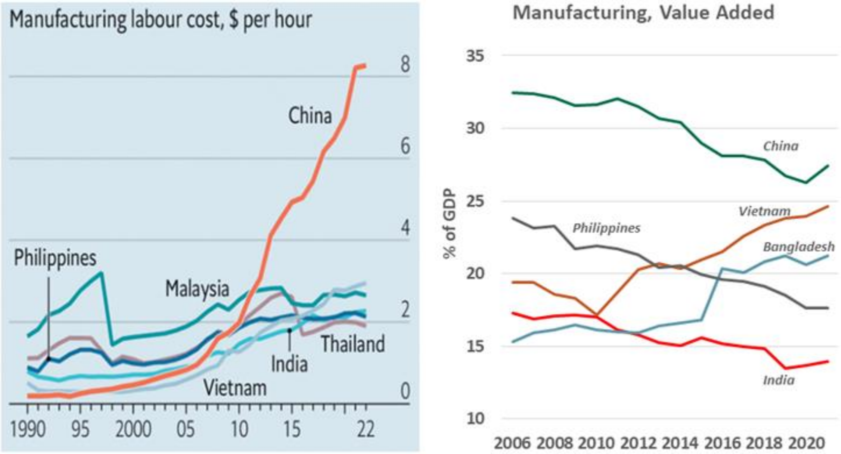
News: Despite efforts by the Government, the share of manufacturing in the economy has remained stagnant in India.

What is the status of manufacturing in India?

- The **manufacturing sector's contribution to GDP** stood at 16.1% in 2014-15 at current prices but declined by three percentage points to **13.1% by 2022-23**. At constant prices, it marginally decreased to 15.6%.
- Similarly, the **share of manufacturing in employment of workforce** has hovered between **12-15% over the last decade**. The sector has failed to create jobs on a scale needed to engage large number of youth entering the workforce every year.

What are the challenges faced by the manufacturing sector?

- **Lack of Industrial Policy**: The approach of the Government has been to launch initiatives like **Make in India** or **PLI schemes** for individual sectors. However, there is a **lack of coherent and well-articulated policy** that is based on a long-term vision with a stated direction for the sector.
  - The Government has tried to create favorable ecosystem by taking steps to **improve India's ranking on the Ease of Doing Business**. However, simplified procedures in a limited number of domains has **not led to any significant improvement in new investments** or setting up of new manufacturing units.
- **Lack of Global Integration**: The Government has tried to refrain from joining trade groups like RCEP for the fear of domestic market being flooded by cheap imports. Because of this, **India's domestic manufacturing has failed to develop competitiveness** and get integrated into the global supply chains.
  - PLI schemes have led to import of components, which are then assembled in India. **Domestic value addition** under the PLI schemes has remained low i.e., end products are not being manufactured from scratch, but only being assembled.



Source: The Economist. China is losing its competitive edge in manufacturing due to rising labour costs (among other factors). Vietnam and Bangladesh have capitalized on this opportunity and have witnessed rise in share of manufacturing in their economies.

  - As many corporates have moved out of China (rising labour costs/other factors), they have shifted base to Vietnam and Bangladesh. They have seen a rise in share of manufacturing in their respective economies.
- **Uncertain Policies**: India's uncertain tariff policies have contributed to **inverted duty structure** which hurts domestic manufacturers and their **export competitiveness**. Uncertainties related to tariff policy has also led to reluctance among foreign investors to invest in large projects in India.
  - In addition, policy steps like **retrospective taxation**, withdrawal of **Bilateral Investment Treaties** make foreign investors wary about investing in India. *(Refer EPIC January 2024 for Issues with India's Inverted Duty Structure and EPIC February 2023 for Bilateral Investment Treaties: India's Approach and Concerns).*
- **Procedural Bottlenecks**: Setting up a new manufacturing plant is challenging due to multitude of factors like large number of **approvals required**, lengthy and challenging process **acquisition of land** (poor land records, large cases of land title litigation, high prices of land).
  - High cost of real estate raises the requirement of capital, which limits the possibility of new start-ups coming up in the manufacturing sector.
  - It also limits the possibility of **MSMEs to scale up their operations**, as they **face challenge in accessing credit** to buy new tracts of expensive land.
- **Factor Costs**: Higher costs of **electricity** (or high down time due to erratic supply), or **transportation** (India's **skewed multi-modal mix**) make domestic manufacturing uncompetitive globally. Domestic consumers prefer cheaper imported goods.
- **Skilled Labour**: Lack of skilled labour hinders the growth.
- **Lack of Robust Data**: In addition, there is lack of robust data on various parameters of the economy. For example, according to the National Account Statistics (NAS) the Gross Fixed Capital Formation (GFCF) grew annually by 5.3% from 2014-15 to 2021-22 while the Annual Survey of Industries estimates it to be -1.6%

(decline). With wide discrepancies in the data, economist will find it hard to correctly diagnose the problem and suggest appropriate policy measures. (*GFCF is equivalent to investments in the sector like plants or machinery. ASI data show that investment has actually declined in the manufacturing sector*).

What should be the way forward?

- **Manufacturing Policy**: The Government should formulate a Manufacturing policy with clearly defined goals and approach to achieve those goals.
- **Address Bottlenecks**: Bottlenecks that hamper competitiveness of domestic manufacturing sector should be addressed like access to uninterrupted electricity at competitive rates, lowering the cost of transportation by correcting the multimodal mix, updating land records and simplifying land registration and transfer etc.
- **Stable Policy Environment**: The Government should provide a stable policy environment in order to attract foreign investment. The protectionist tariff policy should be replaced by measures to make the domestic manufacturing more competitive.
- **Support to MSMEs**: The Government has launched Mudra Scheme to provide access to credit to MSMEs. Regular feedback from MSMEs is necessary to address challenges they still face in scaling up operations.
- **Skilling**: Skilling of the workforce should be top priority of both the Government and the corporate sector.

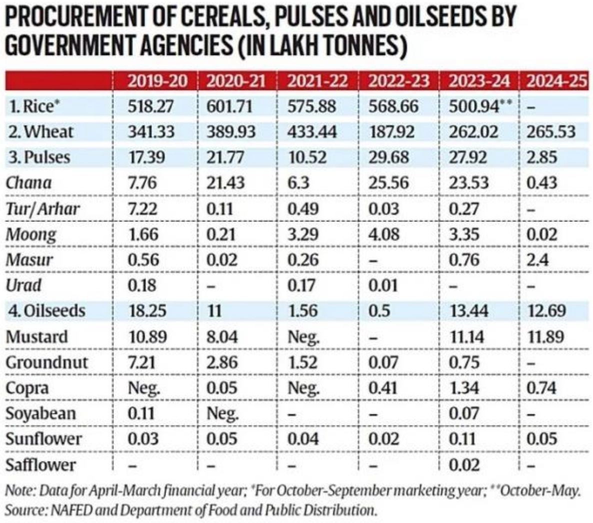
Generating employment remains a big challenge for policymakers. In order to become a developed economy, the share of population dependent on agriculture has to be reduced drastically, and a major share of surplus workforce must be absorbed in the manufacturing sector (most service sectors are less labour intensive). Reviving the growth of manufacturing sector should be the top focus area of the Government.

4. Importance of Buffer Stocks in Managing Inflation

News: Buffer Stock of common food items can cushion the impact of supply shocks and stabilize food prices.

What buffer stock operations have been undertaken by the Government in recent times?

- **Wheat**: In 2022-23, the Food Corporation of India (FCI) sold 34.82 lakh tonnes of wheat in the open market. In 2023-24, it rose to 100 lakh tonnes. This operation brought down the inflation in wheat from 25.4% in February 2023 to 6.5% in May 2024.
- **Chana**: NAFED had procured 25.6 and 23.5 lakh tonnes of chana in 2021-22 and 2022-23, at the respective MSP in the two years. Since July 2023, it has sold ~33 lakh tonnes of chana in the market to counter the shortage and curb the price rise.
- Despite, these actions by the Government, the inflation for cereals and pulses stood at 8.69% and 17.14% in May 2024.



PROCUREMENT OF CEREALS, PULSES AND OILSEEDS BY GOVERNMENT AGENCIES (IN LAKH TONNES)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
1. Rice*	518.27	601.71	575.88	568.66	500.94**	–
2. Wheat	341.33	389.93	433.44	187.92	262.02	265.53
3. Pulses	17.39	21.77	10.52	29.68	27.92	2.85
Chana	7.76	21.43	6.3	25.56	23.53	0.43
Tur/Arhar	7.22	0.11	0.49	0.03	0.27	–
Moong	1.66	0.21	3.29	4.08	3.35	0.02
Masur	0.56	0.02	0.26	–	0.76	2.4
Urad	0.18	–	0.17	0.01	–	–
4. Oilseeds	18.25	11	1.56	0.5	13.44	12.69
Mustard	10.89	8.04	Neg.	–	11.14	11.89
Groundnut	7.21	2.86	1.52	0.07	0.75	–
Copra	Neg.	0.05	Neg.	0.41	1.34	0.74
Soyabean	0.11	Neg.	–	–	0.07	–
Sunflower	0.03	0.05	0.04	0.02	0.11	0.05
Safflower	–	–	–	–	0.02	–

*Note: Data for April-March financial year; *For October-September marketing year; **October-May.*
Source: NAFED and Department of Food and Public Distribution.

Source: Indian Express. Procurement of cereals, pulses and oil seeds by Government agencies.

What are the reasons for food inflation?

- **Climate Change**: Unpredictable weather, such as fewer rainy days, extended dry spells, and intense spells of precipitation, have impacted food production. Poor crop output over the last 3 years has reduced wheat stocks from 603.56 lakh tonnes in July 2021 to 301.45 lakh tonnes in July 2023.
- **Increased Demand**: High demand has driven up prices. For instance, chana prices rose from INR 70 to INR 90 per kg in a year, while tur/arhar prices jumped from INR 120 to INR 170 per kg.

- **Limited Procurement**: NAFED could procure only 43,000 tonnes of chana this season, compared to higher quantities in previous years.

What are the benefits of buffer stocks?

- **Price Stability**: Buffer stocks help stabilize prices when there is a supply shock or a sudden spike in prices. It helps in keeping inflation low e.g., the overall CPI inflation was 4.75% in May 2024 (the lowest in 12 months), due to buffer stock interventions by the Government agencies.
- **Consumer Protection**: Buffer stocks provide cushion against sudden price rise and protect consumer interest. Consumers benefit from lower prices e.g., NAFED sold 16.09 lakh tonnes of chana as 'Bharat Dal' at INR 60/kg, helping keep prices affordable.
- **Support for Farmers**: During surplus years, farmers benefit from minimum support prices (MSP). NAFED bought chana at MSP of INR 5,230 and INR 5,335 per quintal in 2021-22 and 2022-23, when the market price had fallen to INR 4,400-4,800 per quintal.
- **Supply Management**: Buffer stocks provide supply during poor crop years, ensuring food security..

What should be done?

- **Procurement**: The Government should increase procurement of pulses and oilseeds, beyond rice and wheat.
- **Inclusion of Vegetables**: Buffer stocking should extend to staple vegetables like onion, potato, and tomato. These can be stored as paste, flakes, or puree for future use.
- **Build Milk Powder Stocks**: The Government should create buffer stocks of skimmed milk powder (SMP) during periods of low prices, like the current drop from INR 315-320 to INR 210 per kg.
- **Improve Market Interventions**: The Government should continuously release buffer stocks during scarcity to stabilize prices. FCI's wheat sales helped reduce cereal inflation from 16.73% to 8.69%.
- **Monitor Climate Impact**: The buffer stock policies should be adapted to address **climate-induced price volatility**, ensuring both consumer protection and farmer support.

5. Draft National Policy on FPOs

News: The Government has released a Draft National Policy on Farmer Producer Organizations (FPOs).

What is a Farmer Producer Organization (FPO)?

- It is a type of **Producer Organization** (PO) where the members are farmers.
- A Producer Organization (PO) is a **legal entity** formed by **primary producers**, viz. farmers, milk producers, fishermen, weavers, rural artisans, craftsmen. A PO can be a **producer company**, a **cooperative society** or **any other legal form** which provides for **sharing of profits/benefits among the members**. In some forms like producer companies, institutions of primary producers can also become members of PO.
- A few key features of the FPO's are:
  - The **ownership of the organization is with its members**. It is an organization of the producers, by the producers and for the producers. *(Read more about FPOs here and here)*.
  - One or more institutions and/or individuals may promote the FPO by way of assisting in mobilization, registration, business planning and operations. However, ownership control is always with members and management is through the representatives of the members.

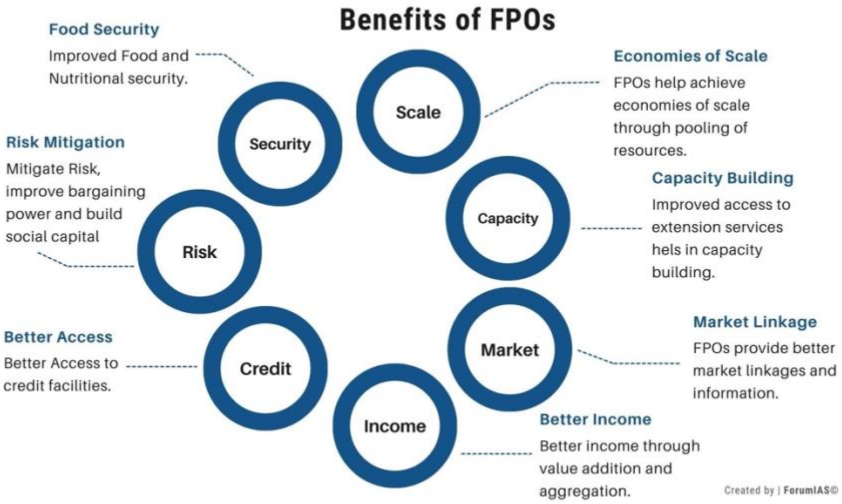
What is the need for FPOs?

- **Fragmented Land-holdings**: Indian agriculture is hindered by fragmented land ownership, with small and marginal farmers owning about 85% of land holdings, according to NABARD.

- These small plots **restrict the adoption of modern farm practices and machinery** and limit the value that small farmers can earn from their crops.

- **Unorganized Farmers and Small Producers**: Unorganized farmers lack the ability to negotiate effectively and face challenges storing crops for sale during the off-season.
  - Small producers also cannot take advantage of cost savings from larger-scale production due to their limited inputs and output.
- **Transparency in Agricultural Marketing**: In agricultural marketing, there's a long chain of middlemen, often lacking transparency, which means **farmers receive only a small share of the final consumer price**.

What is the significance of Farmer Producer Organizations in addressing these challenges?


Benefits of FPOs
Food Security
Improved Food and Nutritional security.
Economies of Scale
FPOs help achieve economies of scale through pooling of resources.
Risk Mitigation
Mitigate Risk, improve bargaining power and build social capital
Capacity Building
Improved access to extension services hels in capacity building.
Security
Scale
Capacity
Risk
Market
Credit
Income
Market Linkage
FPOs provide better market linkages and information.
Better Access
Better Access to credit facilities.
Better Income
Better income through value addition and aggregation.
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- **Institutional Support**: Each FPO, led by elected farmer directors, is owned by its members who share profits. FPOs **receive support** from institutions like NABARD and other Government departments for **finance and technical expertise**.
- **Support Agro-operations**: FPOs streamline operations, **cut-out middlemen** that harm interests of farmers. By pooling resources, farmers can improve yields and get better prices for their crops.
- **Enhance Bargaining Power**: FPOs strengthen farmers' bargaining power with buyers and suppliers.
  - They procure inputs, provide market information, facilitate access to finance, and provide storage and processing facilities.
- **Marketing Support**: FPOs assist in branding, packaging, and marketing produce to larger buyers.

What are the provisions of the new draft Policy on FPOs?

- **Objective**
  - To consolidate existing FPOs and promote the formation of new ones.
  - To create an ecosystem that supports income-oriented farming and enhances the overall well-being of farmers.
- **Operation**: It plans to establish 7-8 active primary-level FPOs in each of the 7,256 blocks in India, with an average membership of 500 farmers per FPO.
  - Though not mandatory, the policy has suggested that FPOs should organise themselves on a 3-tier basis – Block, District and State level.
- **Supply Chain Model**: The Policy suggests a **3-tiered supply chain model**, inspired by Amul's successful milk model, for agricultural and horticultural produce. This model covers **value addition**, **processing**, and **marketing**, targeting both domestic and international markets.
- **Credit & Financing**: It includes funds like the **FPO Equity Grant Fund** and **FPO Formation Fund**, along with support from the Agriculture Infrastructure Fund scheme. This support includes interest subsidies and credit guarantees.

What is the significance of the new policy?

- The policy will benefit around **25 million farmers nationwide**, **boosting their income** through simpler agribusiness operations and more efficient production practices.
- It will **enhance the value of agricultural and horticultural produce** for farmers, benefiting both domestic sales and exports.
- It will tackle the problem of inefficient management in FPOs, including challenges in hiring and keeping skilled managers.

Comparison between Cooperatives and Producer Companies

Parameters	Cooperative	Producer Company
Registration	Cooperatives Societies Act	Companies Act
Area of Operations	Restricted, Discretionary	Can be entire India
Membership	Individuals and Cooperatives	Any individual, group, association, producer of goods or services
Share	Non-tradable	Not tradable but transferable, limited to members on par value
Profit-sharing	Limited dividends on shares	Commensurate with the volume of business
Voting Rights	One member, one vote but the Government and Registrar of Cooperatives hold veto power	One member, one vote. Members not having transactions with the company can't vote.
Reserves	Created if there are profits	Mandatory to create every year
Borrowing Power	Restricted	More freedom and alternatives

6. National Quantum Mission

News: The launch of National Quantum Mission (2023) has put India among the top 6 nations involved in the R&D in quantum technologies. However, the mission faces several challenges in the achievement of its objectives.

What is quantum computing technology? What are its areas of application and advantages?

- It is a rapidly emerging technology that leverages the **principles of quantum mechanics** to **solve complex problems** that are beyond the capabilities of classical computers.
- Quantum computing is based on phenomena of **superposition** and **entanglement** which allow **quantum bits** (qubits) to exist in multiple states simultaneously and interact with each other in complex ways. The **use of qubits enhances the computing power** by several factors in comparison to classical computing methods.
- Quantum Computing has several applications and advantages:
  - **Higher Problem-solving capabilities** in areas like cryptography, materials science, drug discovery, climate modelling, complex optimization problems etc.
  - **Enhanced AI Models**: It can dramatically improve machine learning algorithms enabling development of more efficient and accurate AI models.
  - **Communications**: It can enable ultra-secure communications using **quantum encryption** making it nearly impossible for hackers to intercept sensitive information.

What are the salient features of the National Quantum Mission?

- The Mission (2023-31) will be implemented by the Ministry of Science & Technology. The Mission aims to seed, nurture, and scale up scientific and industrial R&D and create a **vibrant and innovative ecosystem in Quantum Technologies** (QTs).

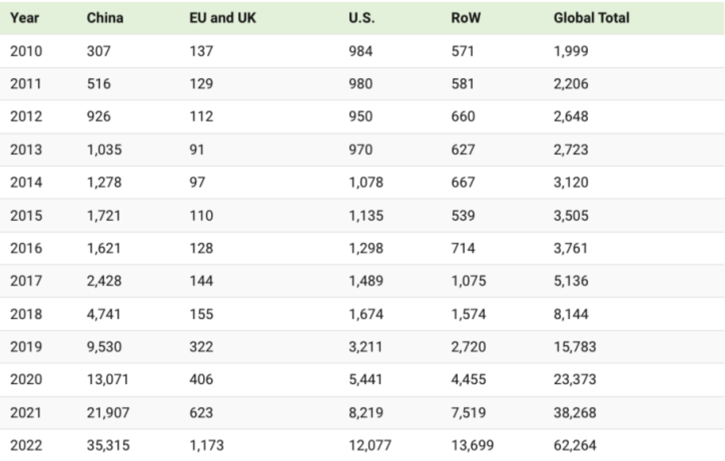
Feature	Details
Development of Quantum Computers	• The mission targets to develop **intermediate scale quantum computers** with 50-100 physical qubits in 5 years and 50-1000 physical qubits in 8 years.
Development of Quantum Materials	• The mission will also support **design** and **synthesis of quantum materials** such as superconductors, novel semiconductor structures and topological materials for fabrication of quantum devices. • The Mission will help **develop magnetometers** with high sensitivity for **precision timing** (atomic clocks), **communications**, and **navigation**.
Secure Communication	• The Mission aims to facilitate **satellite based secure Quantum Communications** between ground stations over a range of 2,000 km within India, and Long distance secure quantum communications with other countries.
Establishment of T-Hubs	• The Mission aims to set up **4 Thematic Hubs** (T-Hubs) in top academic and National R&D institutes in the domains of Quantum Technology: **Quantum Computation**, **Quantum Communication**, **Quantum Sensing & Metrology** and **Quantum Materials & Devices**.

What is the significance of the National Quantum Mission?

- **Improve India's Standing**: New age technologies like quantum computing, AI, Internet-of-Things (IoT) etc. are re-writing the world economic order. The Mission will secure India's position in a new economic order.
- **Economic Growth and Job Creation**: According to experts, the adoption of quantum technologies in India can contribute US$ 280-310 billion to the economy by 2030. The mission will help to spur job creation in research, development, and the manufacturing of quantum devices and systems.
- **Boost to Industries**: It will boost the industrial ecosystem in India which includes industries in the sector of aero-space engineering, weather prediction, simulations, cyber security, advanced manufacturing, health, agriculture, and education.
- **Security Infrastructure**: The Mission will help to secure the communication and financial transactions infrastructure in India.
- **Socio-economic Development**: The Mission will complement and support other national socio-economic development programs like **Digital India**, **Make in India**, and **progress towards the SDGs**.
- **Solving Modern-age Problems**: The Mission will help in finding radical solutions to some of the most intractable problems of the modern age, such as **clean energy**.

What are the challenges associated with the Mission?

- **Lesser Investment**: The INR 6,000 crore ($0.75 billion) earmarked for the Mission is very low compared to China's US$ 15 billion investment or the US' $3.75 billion.
- **Slow Pace of R&D**: India lags far behind China and the US in terms of research output.
  - Between 2000 and 2018, while the Indian researchers have published 1,711 papers on quantum-related science, the Chinese and American researchers have published 12,110 and 13,489 papers respectively. Among the 10% most cited papers, the US and China again lead the way, with India languishing at the 20th rank.



Year	China	EU and UK	U.S.	RoW	Global Total
2010	307	137	984	571	1,999
2011	516	129	980	581	2,206
2012	926	112	950	660	2,648
2013	1,035	91	970	627	2,723
2014	1,278	97	1,078	667	3,120
2015	1,721	110	1,135	539	3,505
2016	1,621	128	1,298	714	3,761
2017	2,428	144	1,489	1,075	5,136
2018	4,741	155	1,674	1,574	8,144
2019	9,530	322	3,211	2,720	15,783
2020	13,071	406	5,441	4,455	23,373
2021	21,907	623	8,219	7,519	38,268
2022	35,315	1,173	12,077	13,699	62,264

Source: Visual Capitalist. In 2010, China accounted for ~15% of patents granted in the field of AI. In 2022, this share stood at 57% while the share of US was only 22%. India's share was 0.2% in 2022.

  - Between 2015 and 2020, Chinese and American researchers acquired 23,335 and 8,935 quantum-related patents respectively. However, Indian researchers had only 339 such patents in the same period. India ranks 9th by the number of patents obtained.
- **Scattered R&D Community**: In 2018, India had 253 full-time equivalent researchers per million of its population. This is about 11% of the researcher density of Italy.
- **Weak Industry-Academia Linkage**: Lack of strong collaborations between academic institutions, research organizations and industries has slowed down the progress of development of quantum computing in India.
- **Fewer Firms in Tech Manufacturing**: At present, ~12% of start-ups in India are deep tech-related. However, less than 3% of these involve manufacturing and/or materials related to quantum technologies.
- **Lack of Adequate Infrastructure**: India does not have enough infrastructure that can support the entire chain of operation from working out the proof-of-principle to developing working prototypes.

What should be the way forward?

- **Promote Young Talent**: The Mission must identify and promote young talent. A separate cadre of quantum scientists like the atomic energy or space science establishments should be raised.
- **R&D Ecosystem**: India needs to create a well-balanced R&D ecosystem where material research for near-term goals and applications need to coexist and collaborate with more fundamental and futuristic goals.
- **Increased Investment Support**: Both public and private entities should increase funding and investment in quantum computing research, development, and innovation.
- **Improvement of Infrastructure Facilities**: The Government and private sector should invest in building state-of-the-art research facilities and providing resources for development of quantum computing.
- **Promotion of Partnerships**: Collaborations between academic institutions, research organizations, and industries must be enhanced to create a robust ecosystem for development of quantum computing.

7. Impact of PESA on Forest Conservation

News: A study has found that political representation to tribal communities enabled by PESA has resulted in better conservation of forests.

What is the conflict in conservation efforts?

- The conflict in conservation efforts in India primarily revolves around two issues: "**Conservation versus local resource extraction**" and "**Conservation versus economic development**".
- The tendency of the Governments to prioritize economic development, large-scale development projects and resource extraction (like dam construction/mining) over forest conservation often leads to **diversion of forests** and **loss of community resources** for the forest-dwelling tribal communities. *(Read more on the Conflict Between Forest Rights and Forest Conservation).*

How has the PESA boosted forest conservation in India?

- **Mandated Representation**: PESA introduced electoral quota that mandates that all positions of Chairperson and at least half the seats on local government councils in Scheduled Areas be reserved for Scheduled Tribes (STs). This political empowerment has directly influenced forest conservation efforts.
- **Increase in Tree Canopy**: According to the study, areas with ST representation under PESA saw an average increase in tree canopy by 3% per year. This demonstrates a direct positive impact on forest cover.
- **Reduction in Deforestation**: The same study found a significant **reduction in the rate of deforestation** in areas with ST representation. This indicates that when STs are involved in governance, there is a more **pronounced commitment to preserving forests**.
- **Resistance to Mining**: With increased ST representation, communities were better able to resist mining and other large-scale commercial operations that lead to deforestation. Areas close to mines witnessed greater reductions in deforestation rates after PESA elections.
- **Comparison with FRA**: The study shows that the Forest Rights Act (FRA) did not have additional impacts on conservation beyond those achieved by PESA, highlighting the **effectiveness of PESA's approach to mandated political representation for conservation**.

What should be the approach going ahead?

- **Effective Implementation**: Ensuring full application of PESA rules to empower tribal communities through representation in local governance (especially in regions where implementation has lagged) can help expand the forest conservation efforts.
- **Empower Scheduled Tribes through PESA**: The representation of STs in local governance should be enhanced further. This empowerment leads to better forest stewardship, demonstrated by increased tree canopy and reduced deforestation rates, and equips ST communities to effectively resist destructive industrial activities such as mining.
- **Democratic Decentralization**: Enhancing representative and accountable local governance involves giving discretionary power to local communities over resource management. This proves more effective than mere administrative approaches.
- **Establish a Single Umbrella Institution**: A centralized institution should be created to empower marginalized voices, balancing development and conservation efforts. This would consolidate power into a meaningful democratic authority, ensuring **more effective management of forest resources** and better representation of vulnerable communities' interests. *(Read more about PESA).*

8. Issues with India's Afforestation Measures

News: Compensatory afforestation is undertaken to compensate for diversion of forests for development projects. However the initiatives suffer from several shortcomings.

What are challenges faced by India in context of ecological degradation?

- Nearly 10 million hectares of India's forests are affected by encroachment.
- Since independence, about 5.7 million hectares of forest land have been repurposed for non-forestry uses.
- India faces the daunting task of restoring 26 million hectares of degraded forests by 2030.
- Approximately 275 million people rely on forests for their basic needs and livelihood.

What initiatives have been taken for Ecosystem Restoration?

- **Decade of Ecosystem Restoration (2021-2030)**: The UN aims to restore 350 million hectares of degraded land to enhance ecosystem services and sequester 13-26 gigatons of greenhouse gases.

- ***Van Mahotsava***: It was first launched in 1950 by K.M. Munshi. It is an **annual tree-planting festival** undertaken in the first week of July, promoting forest growth and engaging public participation.
- **Aravalli Green Wall Project**: It is part of the Ministry of Environment's vision to **create green corridors** to **combat land degradation and desertification**. The project covers States of Haryana, Rajasthan, Gujarat and Delhi, where the Aravalli hills landscape span over 6 million hectares of land. The project will involve **planting native species** of trees and shrubs on scrubland, wasteland and degraded forest land, along with **rejuvenating and restoring surface water bodies** such as ponds, lakes and streams.

Global Initiatives

'One Trillion Trees Initiative' by the **World Economic Forum** aims to massively increase global tree cover.

The **"Great Green Wall"** of **China** is aimed at **reducing desertification**.

Pakistan's **"10 Billion Tree Tsunami"** is a large-scale national reforestation initiative.

The **"Bonn Challenge"** has a target of restoring 350 million hectares by 2030.

- **Compensatory Afforestation**: Compensatory afforestation is undertaken for diversion of forest land for development projects and the cost is paid by the user agency (party diverting the forest). The Government has released guidelines for afforestation. **Compensatory Afforestation Fund Management and Planning Authorities** have been created at the National and State level. *(Read more about Compensatory Afforestation)*.

What are the challenges with current tree planting efforts?

- **Monoculture and Quality of Afforestation**: Most initiatives focus on planting single species of trees, which can be less effective for biodiversity and carbon sequestration compared to diverse plantings. Similarly, the ecological value of diverting evergreen forest can't be compensated by afforestation in a degraded land e.g., the **diversion of evergreen forests** in **Greater Nicobar Project** will be compensated by **afforestation in Haryana**. *(Refer EPIC May 2023 for Great Nicobar Development Project)*.
- **Limited Community Participation**: Many tree planting initiatives and campaigns, suffer from inadequate involvement of local communities, which is crucial for the long-term success of these projects.
- **Inadequate Post-Planting Care**: There is a lack of ongoing maintenance and monitoring of tree growth, which is vital for the survival and ecological integration of newly planted trees.
- **Ecological Neglect**: Research by Joseph Veldman has found that planting trees in inappropriate locations, such as grasslands and animal habitats, can damage existing ecosystems.
- **Misclassification of Lands**: Ecologist William Bond has criticized the practice of labelling grasslands as deforested or degraded, which can lead to **misguided restoration efforts** that overlook the ecological value of these areas.
- **Increased Risk of Wildfires**: Introducing trees into grassland areas can increase the likelihood and intensity of wildfires, posing greater ecological risks.

What should be the approach?

- **Better Planning and Implementation**: Afforestation projects should be well-planned and executed. The focus should be on ecological balance and biodiversity. For instance, projects should prioritize diverse plantations over monocultures to better mimic natural forests.
- **Community Involvement**: Local communities and tribal groups should be involved in planning and executing afforestation projects to ensure their livelihoods are protected. The Forest Rights Act recognizes the rights of forest-dwelling communities, which should be upheld in afforestation efforts.
- **Monitoring and Evaluation**: Robust monitoring mechanisms should be implemented to track the success of afforestation projects and make necessary adjustments. Regular evaluation and reporting can ensure the

effectiveness of afforestation. For example, monitoring should focus not just on the number of saplings planted, but on their **survival and growth over time**.

- **Efficient Fund Management**: Fund allocation processes should be streamlined and transparency should be ensured to utilize available funds effectively. Efficient fund management is crucial for the success of afforestation projects.

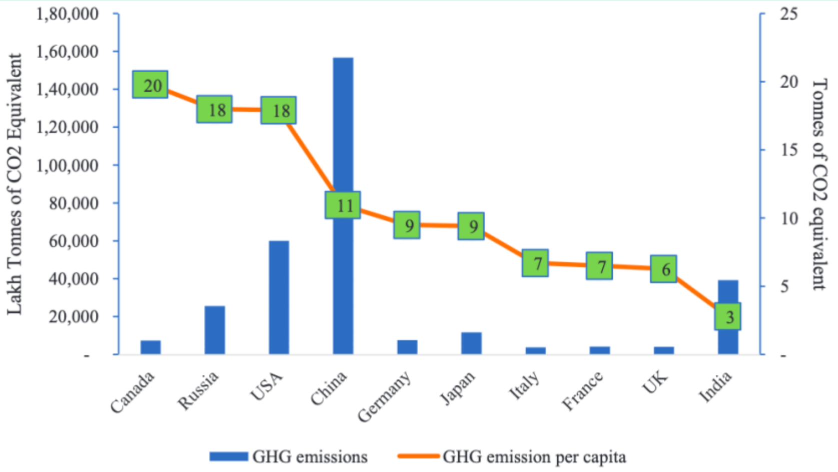
9. Criticism of Global Climate Action Framework in the Economic Survey

News: The Economic Survey has criticized the current framework of the global climate action as being ineffective and inequitable. It calls for greater focus on adaptation and resilience and not just mitigation.

What is the criticism of the Current Climate Framework?

- **Missed Targets**: The international climate action framework has failed to achieve its targets. Successive IPCC reports have observed that 2°C target will not be met with the current pace of emission reduction.
- **Unfair Pressure on Developing Nations**: The focus on achieving the 1.5°C target imposes undue pressure on developing countries. This pressure diverts resources away from improving people's lives in these nations e.g., India is being pressurized to phase-out coal but coal is essential for providing energy security to a large number of poor in India.
- **Failures of Developed Countries**: Developed countries, especially the US, have not met emission reduction goals. In 2019, US' emissions were 6% higher than in 1990. The developed nations have not fulfilled their commitments related to **climate finance** and **technology transfer**. *(Refer EPIC November 2022 for Climate Finance)*.
- **Inequitable International System**
    - The system perpetuates the dominance of the rich countries, as seen by the replacement of **Kyoto Protocol** (which required developed countries to undertake **binding and targeted emission cuts**) with **Paris Agreement** (which requires both developing and developed countries to take action).
    - Scientific models used by the IPCC are criticized for disregarding historical responsibilities and future needs of developing nations.

Chart XIII.5: Major Economies with their total and per-capita GHG emissions (CO2 equivalent)



Source: Economic Survey. Developed countries have not only had higher historical contribution to emissions, even today, their per capita emissions (green boxes) are much higher than developing countries like India.

What alternative has been proposed by the Economic Survey?

- The Economic Survey advocates for **focusing on adaptation alongside mitigation**. It suggests that since the 1.5°C target will likely be breached, **improving resilience** and overall well-being is crucial.
- It proposes **incorporating lifestyle** and **behavioral changes** to **reduce greenhouse gas emissions**.
- The Survey argues that **adaptation should receive equal importance as mitigation**.
- It challenges the notion that achieving the 1.5°C target at all costs is necessary, suggesting a warmer world could also be more equitable and resilient.

- The Survey also calls for a **shift in India's energy transition strategy**, emphasizing rapid development and adaptation over strict adherence to temperature targets. *(Read more about India's New Climate Targets)*.

10. Cross-border Terrorism in India

News: Multiple attacks on the security forces in Jammu region point towards efforts by India's adversaries to revive terrorism in Jammu and Kashmir.

What is Cross-border Terrorism? What are the sources of cross-border terrorism in India?

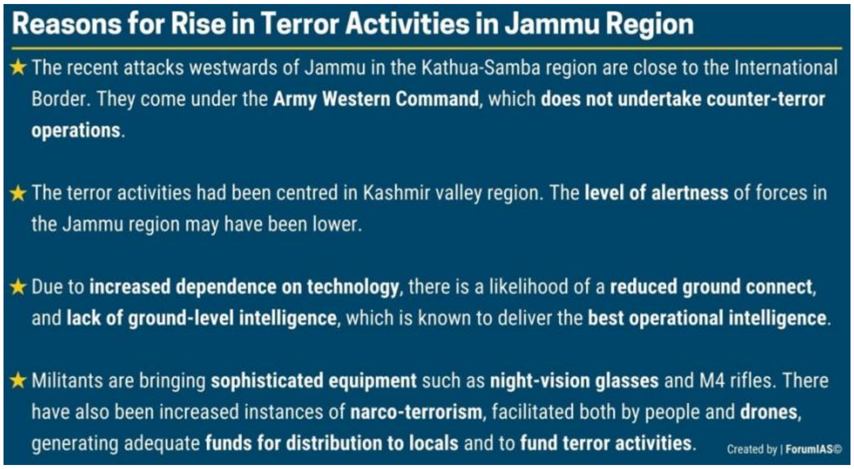
- In Cross-Border Terrorism, territory of one country is used to create terror in bordering countries.
- It is a form of **grey zone conflict** and is an **undeclared war**. It is considered to be highest form of strategy to bleed a nation for prolonged period by small efforts.

Sources of Cross-border Terrorism

Source	Details
Indo-Pakistan Border (3,323 km)	• It runs along Gujarat, Rajasthan, Punjab, and J&K. • Cross-Border terrorism has exacerbated due to non-recognition of boundaries by terrorist groups based in Pakistan and their success in acquiring legitimacy due to religious or ethnic identity. • Inadequate cooperation from Pakistan has made border management difficult.
Indo-China Border (3,488 km)	• Due largely inhospitable border, cross-border infiltration is nearly absent.
Indo-Bangladesh Border (4,096 km)	• It passes through West Bengal, Assam, Meghalaya, Tripura and Mizoram. • **Illegal migration** across this border poses serious security threats and acts as a fertile ground for organisations like the ISI of Pakistan to penetrate and expand their activities. • Poor law and order situation at the border, has led to **smuggling of arms** and **drugs**.
Indo-Nepal Border (1,751 km)	• It is an **open border** to facilitate the **free movement** of people. • Anti-India organizations use this border to plant their people in the territory of India. **Smuggling** of **gold**, **small arms**, **drugs** and **fake currency** helps terrorists in executing their activities.
Indo-Myanmar Border (1,643 km)	• It passes through Arunachal Pradesh, Nagaland, Manipur and Mizoram. • The **insurgents** and **terrorist groups** like the National Socialist Council of Nagaland (NSCN) and United Liberation Front of Asom (ULFA) operate from Myanmar, which threaten the security of India as well as Myanmar.
India-Bhutan Border (699 km)	• It passes through Assam, Arunachal Pradesh, West Bengal and Sikkim. • Illicit establishment of camps by militant outfits in the dense jungles of south-east Bhutan helps insurgents in executing anti-India activities.
Maritime Borders	• India's long coastline remains comparatively unguarded with low presence of coast guards. The 26/11 cross-border terrorist attack took place through maritime borders.

What are the reasons for cross-border terrorism in India?

- **Pakistan Sponsored Terrorism**: Pakistan has adopted cross-border terrorism as a strategy to weaken India (since the defeat in the 1971 war, which showed Pakistan's weakness vis-à-vis India in conventional warfare).



Reasons for Rise in Terror Activities in Jammu Region

- ★ The recent attacks westwards of Jammu in the Kathua-Samba region are close to the International Border. They come under the **Army Western Command**, which **does not undertake counter-terror operations**.
- ★ The terror activities had been centred in Kashmir valley region. The **level of alertness** of forces in the Jammu region may have been lower.
- ★ Due to **increased dependence on technology**, there is a likelihood of a **reduced ground connect**, and **lack of ground-level intelligence**, which is known to deliver the **best operational intelligence**.
- ★ Militants are bringing **sophisticated equipment** such as **night-vision glasses** and M4 rifles. There have also been increased instances of **narco-terrorism**, facilitated both by people and **drones**, generating adequate **funds for distribution to locals** and to **fund terror activities**.

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Pakistan-based groups like Lashkar-e-Taiba and Jaish-e-Mohammad continue to actively wage proxy war against India, while there are efforts to revive Khalistani terrorism as well.

- o Pakistan has provided active material support to secessionist militants in India's border States in the Northeast, in addition to J&K. There has been inadequate cooperation from Pakistan in stopping cross-border terrorism.

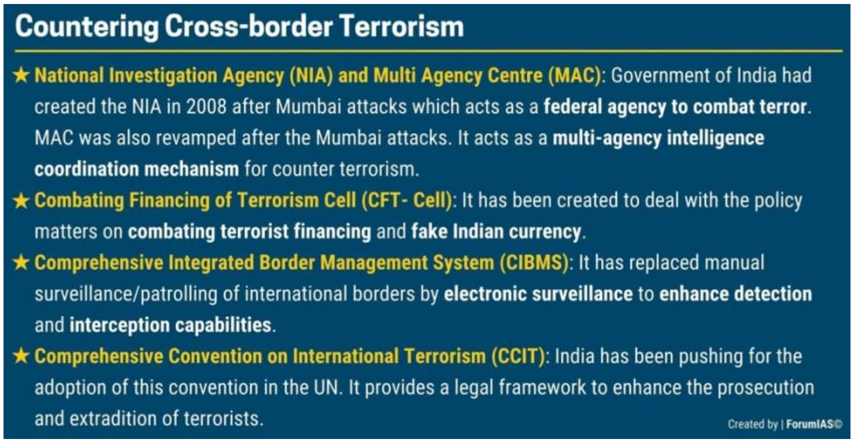
- **Porous Borders**: India's borders with most of its neighbours like Bangladesh, Nepal are porous and difficult to fully secure due to complex geographical features like hilly terrain, deserts, and riverine areas. This makes it easier for terrorists to infiltrate into India.
- **Over-ground Workers**: The local population is recruited as over-ground workers by the terrorist outfits in border areas. These over-ground workers support and facilitate the cross-border movement of terrorists by providing them transportation, shelter, and other assistance.
- **Corruption**: Corrupt officials allow illegal cross-border movement in exchange for bribes. This provides avenues for criminal elements and terrorists to enter India.

What are the effects of cross-border terrorism in India?

- **Loss of Lives**: There has been loss of lives of thousands of civilians in acts of cross-border terrorism over the years. Thousands of defense, paramilitary and police personnel have sacrificed their lives in the line of duty fighting cross-border terrorism.
- **Disruption of Peace**: Cross-border terrorism has disrupted peace and security along India's borders. It has led to a deterioration of bilateral relations between India and Pakistan.
- **Illegal Smuggling**: Cross-border terrorism has facilitated illegal infiltration and smuggling of narcotics, arms and weapons across India's borders, especially with Pakistan and Bangladesh.
- **Economic Costs**: The resources and efforts diverted to counter cross-border terrorism have come at an economic cost to India in terms of defense expenditure and lost economic opportunities. The development of J&K has been hampered to a large extent by the lack of peace and security because of which businesses are reluctant to invest in the State.
- **Psychological Impact**: The constant threat of cross-border terrorism has created an atmosphere of fear and insecurity among the civilian population living along the borders.

What should be the way forward?

- **Border Management Policies**: There is a need to reassess policies related to management of international borders including the intelligence apparatus and infrastructure. The fencing of all borders of India must be expedited.
- **Retaliatory Strikes**: The surgical strikes like Uri (2016) and the airstrike like Balakot (2019) must be carried out to deter Pakistan. The military should also look at alternative means to strike at the terror camps across the LoC (Line of Control) through mechanisms like the Precision Engagement Capability.



Countering Cross-border Terrorism

★ **National Investigation Agency (NIA) and Multi Agency Centre (MAC)**: Government of India had created the NIA in 2008 after Mumbai attacks which acts as a **federal agency to combat terror**. MAC was also revamped after the Mumbai attacks. It acts as a **multi-agency intelligence coordination mechanism** for counter terrorism.

★ **Combating Financing of Terrorism Cell (CFT- Cell)**: It has been created to deal with the policy matters on **combating terrorist financing** and **fake Indian currency**.

★ **Comprehensive Integrated Border Management System (CIBMS)**: It has replaced manual surveillance/patrolling of international borders by **electronic surveillance** to **enhance detection** and **interception capabilities**.

★ **Comprehensive Convention on International Terrorism (CCIT)**: India has been pushing for the adoption of this convention in the UN. It provides a legal framework to enhance the prosecution and extradition of terrorists.

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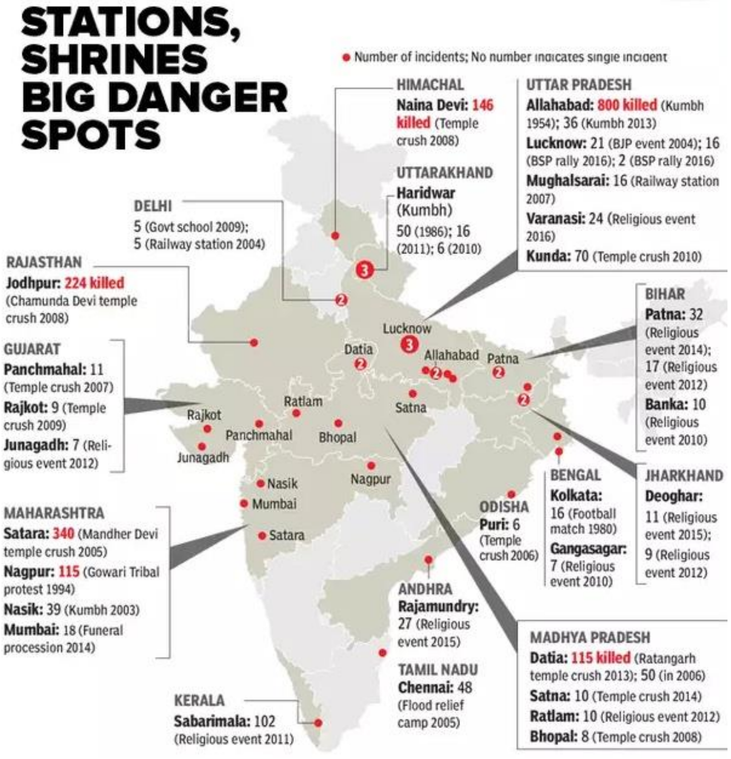
- **Specialised Training:** India should move in the direction of specialisation of military to fight cross-border terrorism. A judicious mix of properly trained manpower and affordable and tested technology is likely to yield better results.
- **Cyber-defence Mechanism**: A holistic cyber defense mechanism must be developed to effectively counter cyber-linked terrorism, including conducting cyber operations and implementing strong counter-measures against cyber-attacks from foreign soil.
- **Speeding up Judicial Process**: India's criminal justice system must be enhanced and legal protocols must be streamlined to **enable speedy trials of cases related to terrorism**.
- **Counter-radicalization Programmes**: The counter-radicalization programs focussing on promoting non-violence and tolerance must be implemented, especially in educational institutions. This will reduce youth's exposure to cross border terrorism and radical ideology. This will also help reduce the number of over-ground workers in India.

11. Stampede Disasters and NDMA Guidelines on Crowd Management

News: A stampede in Hathras, Uttar Pradesh led to deaths of ~120 people. Such stampedes have been a regular occurrence in India. This calls for detailed look into the stampede disasters and ways to avoid them.

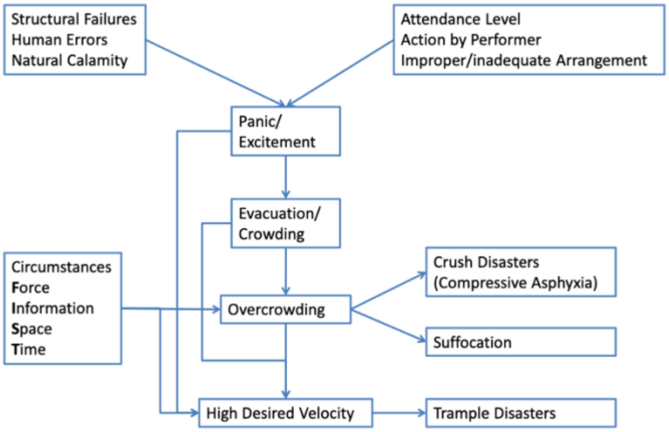
What is Stampede?

- Stampede is the **disruption of orderly movement of crowd** which leads to loss of lives and injuries. The impulsive mass movement of crowd often takes place in **response to a perceived danger** or **loss of physical space**.
- Big stampedes causing large loss of lives have occurred fairly regularly in India like Allahabad Kumbh (UP, 1954), Wai stampede (Satara, Maharashtra, 2005), Naina Devi Temple stampede (Himachal Pradesh, 2008), Jodhpur Temple stampede (Rajasthan, 2008), Allahabad Railway stampede (UP, 2013), Mumbai Pedestrian Bridge stampede (2017) etc.
- **Stampede Statistics In India**
  - According to the National Crime Records Bureau, between 2000 to 2013, ~2,000 people died in stampedes in India.


STATIONS, SHRINES BIG DANGER SPOTS
● Number of incidents; No number indicates single incident
HIMACHAL
Naina Devi: 146 killed (Temple crush 2008)
UTTAR PRADESH
Allahabad: 800 killed (Kumbh 1954); 36 (Kumbh 2013)
Lucknow: 21 (BJP event 2004); 16 (BSP rally 2016); 2 (BSP rally 2016)
Mughalsarai: 16 (Railway station 2007)
Varanasi: 24 (Religious event 2016)
Kunda: 70 (Temple crush 2010)
UTTARAKHAND
Haridwar (Kumbh)
50 (1986); 16 (2011); 6 (2010)
DELHI
5 (Govt school 2009);
5 (Railway station 2004)
RAJASTHAN
Jodhpur: 224 killed (Chamunda Devi temple crush 2008)
GUJARAT
Panchmahal: 11 (Temple crush 2007)
Rajkot: 9 (Temple crush 2009)
Junagadh: 7 (Religious event 2012)
BIHAR
Patna: 32 (Religious event 2014); 17 (Religious event 2012)
Banka: 10 (Religious event 2010)
3
2
Lucknow
3
Datia
2
Allahabad
2
Patna
2
2
Ratlam
Satna
Rajkot
Panchmahal
Bhopal
Junagadh
Nasik
Mumbai
Satara
Nagpur
BENGAL
Kolkata: 16 (Football match 1980)
Gangasagar: 7 (Religious event 2010)
JHARKHAND
Deoghar: 11 (Religious event 2015); 9 (Religious event 2012)
ODISHA
Puri: 6 (Temple crush 2006)
MAHARASHTRA
Satara: 340 (Mandher Devi temple crush 2005)
Nagpur: 115 (Gowari Tribal protest 1994)
Nasik: 39 (Kumbh 2003)
Mumbai: 18 (Funeral procession 2014)
ANDHRA
Rajamundry: 27 (Religious event 2015)
TAMIL NADU
Chennai: 48 (Flood relief camp 2005)
KERALA
Sabarimala: 102 (Religious event 2011)
MADHYA PRADESH
Datia: 115 killed (Ratangarh temple crush 2013); 50 (in 2006)
Satna: 10 (Temple crush 2014)
Ratlam: 10 (Religious event 2012)
Bhopal: 8 (Temple crush 2008)

- A 2013 study published by International Journal of Disaster Risk Reduction (IJDRR) points out that religious gathering and pilgrimages have been venues for 79% of the stampedes in India.

What are the major causes of Stampedes?



Source: NDMA. Process of crowd disaster.

- **Structural Causes**: This happens due to **structural and design failures** in the buildings, bridges etc.; structural collapse of makeshift bridges or temporary structures; Improper and unauthorised structures; narrow streets with very few entry or exits or absence of emergency exits etc.
- **Fire/Electricity causes**: It can happen due to fire in a makeshift facility or a shop; non-availability of fire extinguishers; **violations of building and fire codes**; **unauthorized storage of fireworks** in enclosed places; electricity supply failure creating panic and triggering a sudden exodus etc.
- **Crowd Behaviour**: The stampedes are either triggered or made worse by **panic in the crowd** like crowd forcing to enter/exit a venue after the start/closing time; Rush during distribution of disaster relief supplies; unruly and irresponsible crowd behaviour or **spread of rumours** triggering panic.
- **Security Issues**
  - **Security Personnel**: It can related to **under deployment** or **deployment of untrained staff**; lack of adequate rehearsals and briefing of security personnel; lack of adequate scientific planning without proper sectoral deployment, or lack of proper wireless deployment.
  - **Surveillance**: It can be related to lack of adequate **observation towers** with proper wireless communication to monitor and regulate crowd; lack of adequate **CCTV surveillance**; or absence of **public announcement systems**.
  - **Infrastructure**: Lack of adequate metal detectors and frisking of pilgrims entering the pilgrimage area or persons entering the gathering area.
- **Lack of Coordination between Stakeholders**: It can happen due to **gaps in coordination** between agencies (e.g. Police and District Magistrate; PWD, Fire Service, Forest officials, Revenue officials, Medical officers etc.) or Inadequate water, medical assistance, public transport/parking facilities due to gaps in communication.

What are the impact of Stampedes?

- **Trauma and Loss**: Stampedes cause large loss of human lives and disrupts the families of the deceased.
- **Economic Hardships**: The majority of victims in such stampedes often come from poor backgrounds. Their deaths leave families without primary breadwinners, causing economic hardships.
- **Erosion of Trust**: Repeated stampedes at large gatherings due to similar failures further undermine faith in the ability of organizers to keep people safe.

What are the NDMA Guidelines for the prevention of Stampedes?

- The National Disaster Management Authority (NDMA) has prepared '**Suggestive Framework for Preparation of Crowd Management Plan for Events/Venues of Mass Gathering**'.

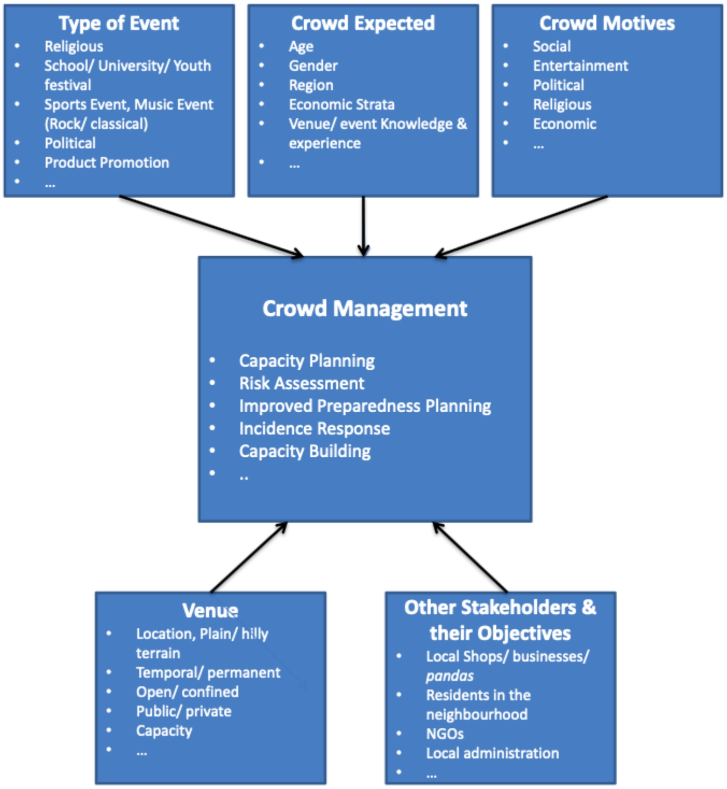
Guideline	Details
Understanding Venue, Visitors and Stakeholders	• Type of event (religious, school, sports, music or political event). • Expected Crowd (age, gender, economic strata). • Crowd Motives (social, academic, religious, entertainment, economic etc.). • Venue (location, topography, temporal or permanent, open or closed). • Role of other stakeholders (NGOs, local administrators etc.).
Crowd Handling	• Proper regulation of Traffic around the mass gathering venues. • A route map for venues along with emergency exits route maps. • Barricade facility to control the movement of crowd queues. • Snake line approach should be followed in case large crowd queues • The organizers of crowded events/venue managers should discourage general admissions and have plans to handle VIP visitors.
Safety and Security	• The organisers should ensure authorised use of electricity, use of fire safety extinguishers as per the safety guidelines. • Use of CCTV cameras to monitor crowds and use of mini UAV in case of big crowd spread.
Communication	• A public address system, with loudspeakers installed at all crowded points, to communicate with the crowd.
Medical and Emergency Care	• Medical first-aid rooms and emergency operations centres to handle post-disaster emergencies should be set up.
Role of Event Managers	• They should develop, implement, review and revise the management plan in coordination with local administration and police.
Role of Civil society	• Event/venue managers should involve NGOs and civil defence in traffic control, people flow control, medical assistance, sanitation and mobilization of local resources in case of disaster.
Role of Police	• The police should actively participate in assessment of venue and check preparedness, and guide crowd and traffic movements.
Role of Media	• **Educational**: Media can educate public about the possible disaster threats, ways to prevent them and how to be better prepared. • **Critical**: Media can critically evaluate the disaster management plans to highlight the gaps for correction.
Capacity Building	• Capacity building, conduction of drills, periodic assessment of training of security personnel, police is essential to prevent crowd disasters.

What are the challenges in the implementation of these Guidelines?

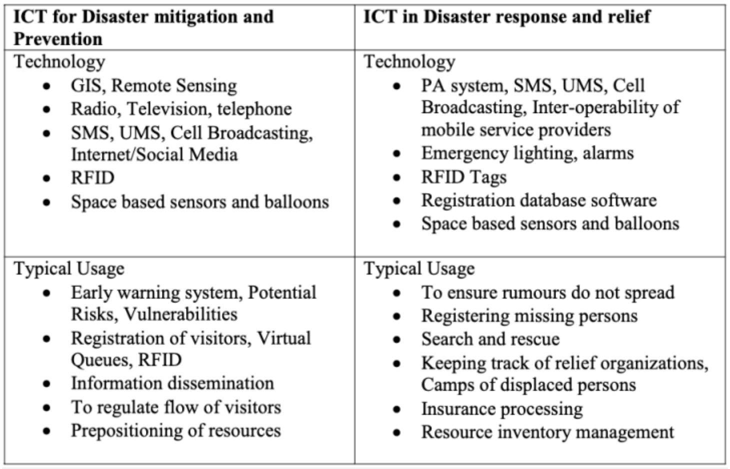
- **Lack of Implementation**: The implementation of these guidelines during the events remains lax.
- **Governance and Accountability**: Agencies responsible for issuing permissions/licences for mass gatherings, events often fail to follow the guidelines and the requirements. Further, there is lack of accountability on part of the authorities.
- **Rising Population**: With rising population and rapid urbanization, urban areas have become more susceptible along with places of frequent mass gatherings like temples.
- **Greater Tolerance to Crowding**: According to several psychologists, there is very high tolerance for crowded places in India, because Indians don't feel uncomfortable until it's very packed. Hence, large-scale events in India become more susceptible to stampedes because of a greater tolerance for high-density crowds.

What should be the way forward?

- **Legislation, Rules and Regulations for Stampedes**: Supreme Court in Uphaar Cinema Tragedy observed that there is a need for a comprehensive legislation dealing with tortuous liability of the State.
- **Specialisation and Professionalism**: There is a need to emphasize effective communication, sensitive on-ground interventions, specialized personnel training, safety insurance, transparency, statutory compliances to maintain the decorum of the crowd in huge events.
- **Capacity Evaluation**: There should be proper evaluation of the capacity of a location or structure before holding mass gatherings. Existing infrastructural problems should be addressed to avoid mishaps.
- **Crowd Behaviour Management**: Every mass event must have a public address system for the officials to stop rumours from getting out of hand, calm panicking crowds, and help people exit in a systematic manner.
- **Use of Technology**: Latest technology like CCTV surveillance with HD IP cameras with Video Management Software (VMS), mobile control room, drones for roof level surveillance and public address system, face recognition among crowds and robotic support should be deployed extensively in crowded places.
- **Penalties**: Stricter penalties, revocation of licenses for construction/fire safety violations, random checks and inspections must be adopted to ensure effective compliance.
- **Engaging Civil Society**: The local civilian organisations like NGOs must be actively engaged in the event for capacity building of event managers etc., for easy mobilization of local resources, better preparedness and traffic control.
- **Learning from Global Best Practices**: The learnings from Global Best Practices in Crowd Management must be adopted for effective crowd management in India.


Type of Event
Religious
School/ University/ Youth festival
Sports Event, Music Event (Rock/ classical)
Political
Product Promotion
...
Crowd Expected
Age
Gender
Region
Economic Strata
Venue/ event Knowledge & experience
...
Crowd Motives
Social
Entertainment
Political
Religious
Economic
...
Crowd Management
Capacity Planning
Risk Assessment
Improved Preparedness Planning
Incidence Response
Capacity Building
..
Venue
Location, Plain/ hilly terrain
Temporal/ permanent
Open/ confined
Public/ private
Capacity
...
Other Stakeholders & their Objectives
Local Shops/ businesses/ pandas
Residents in the neighbourhood
NGOs
Local administration
...

Source: NDMA. Integrated approach to crowd management.



ICT for Disaster mitigation and Prevention	**ICT in Disaster response and relief**
Technology • GIS, Remote Sensing • Radio, Television, telephone • SMS, UMS, Cell Broadcasting, Internet/Social Media • RFID • Space based sensors and balloons	Technology • PA system, SMS, UMS, Cell Broadcasting, Inter-operability of mobile service providers • Emergency lighting, alarms • RFID Tags • Registration database software • Space based sensors and balloons
Typical Usage • Early warning system, Potential Risks, Vulnerabilities • Registration of visitors, Virtual Queues, RFID • Information dissemination • To regulate flow of visitors • Prepositioning of resources	Typical Usage • To ensure rumours do not spread • Registering missing persons • Search and rescue • Keeping track of relief organizations, Camps of displaced persons • Insurance processing • Resource inventory management

Source: NDMA. Use of technology in crowd management.

Factly

Polity

1. Deputy Speaker of the Lok Sabha

News: There has been a lack of consensus between the ruling coalition and the opposition regarding the choice for Deputy Speaker of the Lok Sabha.

Constitutional Provisions Regarding Deputy Speaker

- **Article 93**: The House of the People (Lok Sabha) is required to elect two members as Speaker and Deputy Speaker whenever these offices become vacant. The Article does not specify a time frame for this election.
- **Article 178**: The Article provides the corresponding requirement for the Speaker and Deputy Speaker of a State's Legislative Assembly.

Election and Removal of Deputy Speaker

- **Rules of Procedure and Conduct of Business in Lok Sabha**: **Rule 8** states that the election of the Deputy Speaker shall be held on a date fixed by the Speaker.
- The Deputy Speaker is elected once a motion proposing her name is passed in the House. Generally, the Deputy Speaker serves for the entire duration of the House.
- **Article 94**: The Speaker or Deputy Speaker **will vacate office if they cease to be a member** of the House.
  - The Deputy Speaker can resign by submitting her resignation to the Speaker.
  - The Deputy Speaker can be removed from the Office by a resolution of the House of the People passed by a **majority of all the then members (absolute majority)** of the House.

Responsibilities and Functions

- **Article 95, Acting as Speaker**: The Deputy Speaker performs the duties of the Speaker when the office is vacant and acts as the Speaker when the latter is absent from House sittings. In both scenarios, the **Deputy Speaker assumes all powers of the Speaker**.
- **Independence from Speaker**: The Deputy Speaker is not subordinate to the Speaker. The Deputy Speaker is responsible to the House.
- **Maintaining Order**: The Deputy Speaker helps in maintaining order and decorum in the House during debates and proceedings ensuring the rules of the House are followed.
- **Committees**: The Deputy Speaker presides over various Parliamentary Committees, facilitating their functioning like the Committee on Private Members' Bills (when nominated), Library Committee etc.
- **Decision-Making**: The Deputy Speaker makes decisions on procedural issues and interpretations of rules in the House, similar to the role of the Speaker.
- **Representative Role**: In the absence of the Speaker, the Deputy Speaker represents the House in ceremonial functions and official events.

2. Leader of Opposition in the Lok Sabha

News: After 10 years, the Lok Sabha will have a Leader of Opposition.

About the Leader of Opposition (LoP) in the Lok Sabha

- According to **The Salary And Allowances Of Leaders Of Opposition In Parliament Act, 1977**, the Leader of Opposition (in a House) is the leader of the party in opposition having the **greatest numerical strength** in that House and recognised as such by the Chairperson (Rajya Sabha) or the Speaker (Lok Sabha).

- There was **no recognized Leader of Opposition till 1969**. The Speaker of the First Lok Sabha, GV Mavlankar, had ruled that in the Lok Sabha the main **opposition party must have strength equal to the quorum of the House** i.e., 10% of the members, to be recognized as such. However, the 1977 Act has specified no such criteria.
- Similarly there was no Leader of Opposition between 1980-89, and 2014-24.

Duties and Responsibilities of the LoP in the Lok Sabha

- The Leader of Opposition is **member of selection committees** that are responsible for the selection of several Constitutional and statutory officers like **Chief Election Commissioner** and the **Election Commissioners**, **Central Vigilance Commissioner**, **Director of the CBI**, **Chief Information Commissioner**, **Chairperson and Members** of the **National Human Rights Commission**, **Lokpal** etc.
- LoP acts as the main **voice of the Opposition** in the Lok Sabha and holds the responsibility of holding the Government accountable. The LoP often engages and leads the debates in the Lok Sabha.
  - An official booklet on Parliament published in 2012 says the Leader of Opposition in Lok Sabha "*is considered as a **shadow Prime Minister** with **a shadow Cabinet**, ready to take over the administration if the Government resigns or is defeated on the floor of the House*".
  - The LoP thus has a vital role in **maintaining checks and balances** within the Parliamentary System.

Shadow Cabinet

The **Shadow Cabinet** or **Shadow Ministry** is a feature of the **Westminster system** (British) of Government. It consists of a senior leaders of the opposition who, under the leadership of the Leader of the Opposition, form an **alternative cabinet** to that of the Government. They **shadow or mirror the positions** of **each individual member of the Cabinet** and hold the **shadow portfolio** (e.g., Shadow Minister for Defense or Finance). The Shadow Cabinet scrutinises the policies and actions of the government, and offers alternative policies.

- In the **order of precedence**, the **Leaders of Opposition** in Lok Sabha and Rajya Sabha come at **No. 7**, along with **Union Cabinet Ministers**, the **Vice-Chairperson of the NITI Aayog**, **former Prime Ministers**, and **Chief Ministers** (in their respective States) *(Refer Complete List)*.

3. Oath of Lok Sabha MPs

News: The newly elected members of the Lok Sabha must take oath, as provided in the Constitution, before the Lok Sabha begins its legislative work.

About the Term of Lok Sabha MP

- The 5-year term of a Lok Sabha MP begins **when the Election Commission of India** (ECI) **declares the results** according to **Section 73 of the Representation of the People Act, 1951**.
  - From that day onward, MPs are eligible for certain rights as elected representatives.
  - The start of their term means that if **MPs change their party allegiance**, their political party can ask the Speaker to **disqualify them** from Parliament under the **Anti-defection law**.

Requirements for an MP to Participate in Lok Sabha

- According to **Article 99**, before taking the seat in the Lok Sabha (and participating in voting/debates); an MP must **make and subscribe to an oath or affirmation** as prescribed the **Third Schedule**.
- **Article 104** specifies a financial penalty of INR 500 if a person participates or votes in the proceedings of the House without taking the oath. This is the only financial penalty mentioned in the Constitution.
- A person can become a Minister without being elected to Parliament. They have 6 months to secure a seat in the either House. During this time, they can **participate but not vote** in the proceedings of the House.

About Parliamentary Oath

- The text of the oath has been prescribed in the **Third Schedule**.
- Before taking the oath, MPs must **submit their election certificate** to the Lok Sabha staff.
  - This requirement was introduced after an incident in 1957 when a mentally unsound person posed as an MP and took the oath.
- Once verified, MPs can take the oath or affirmation in English or any of the 22 languages specified in the Constitution. Approximately half of the MPs take their oath in Hindi or English.
- MPs must **use the name mentioned in their election certificate** and **adhere to the exact text of the oath**.
- MPs can choose between **swearing in the name of God** or **making a solemn affirmation**.
- The Constitution specifies that if an MP does not attend Parliament for 60 days, their seat can be declared vacant. Courts have used this ground to allow MPs in jail to take an oath in Parliament.

Oath vs Affirmation

An oath is a public declaration based on an appeal to a higher power that the person taking the oath will keep a promise or perform a duty faithfully. The reference to higher power can be to God or to a Holy Religious Text.

An affirmation is a pledge equivalent to an oath but without any reference to a higher being.

4. Verification of EVM Burnt Memory

News: 11 candidates from the 2024 General Election and State Assembly elections have requested verification of the burnt memory in the EVMs and VVPAT units.

About the Verification of Burnt Memory of EVMs

- In April 2024, the Supreme Court allowed losing candidates to seek verification of **burnt memory of Ballot Units** and **Control Units of EVMs** and **VVPAT machines**.
- In its Judgment related to EVMs, the SC had allowed the candidates coming 2nd or 3rd to ask for a verification of the burnt memory of microcontrollers in **5% of EVMs per Assembly segment of each Parliamentary constituency** (to check for tampering).
- The SC had stated that candidates or their representatives "must identify the EVMs to be verified by polling station or serial number" and "have the option to be present during the verification process".
- Requests for verification must be submitted **within 7 days of declaration of result**.
- The **Candidates have to bear the expenses of the verification process**. However, if any tampering is found, the expenses will be refunded. *(Refer EPIC May 2024 (click) for Supreme Court's Judgment on EVMs)*.

About the Process of Verification

The ECI released the administrative SOP for checking and verifying the burnt memory of EVMs and VVPATs.

- The **District Electoral Officer** (DEO) will be responsible for overseeing the verification process.
- Candidates can choose units to be verified by providing the polling station number or the unique serial number of the Ballot Unit, Control Unit, and VVPAT.
- Candidates must submit their requests in writing to the DEOs and deposit INR 40,000 (plus 18% GST) per set of EVM (BU, CU, and VVPAT) with the manufacturer.
- DEOs will send a list of applications to the **State Chief Electoral Officer**, who will **notify the manufacturers of EVMs** (Bharat Electronics Ltd and Electronics Corporation of India Ltd) **within 30 days of the result declaration**.
- **Verification will start 45 days after the results are declared**, provided no Election Petitions have been filed. If Election Petitions have been filed, verification will only begin after a court order.
- The process should start **within 30 days of manufacturers being informed**.

- ○ Verification will take place in designated halls at the manufacturers' facilities, equipped with strong rooms and CCTV cameras. Electronic devices, including cell phones and cameras, are prohibited inside the halls.
- ○ The halls will have a single entry and exit point, with at least one section of armed police force deployed.

5. Cabinet Committees

News: The new Union Government has reconstituted the Cabinet Committees.

About Cabinet Committees

- Cabinet Committees are not defined in the Constitution (extra-Constitutional). Cabinet Committees are constituted under the **Rule 6 of the Government of India (Transaction of Business) Rules, 1961**.
- The Committees are established to **streamline decision-making**.
- Cabinet Committees usually consist of Cabinet Ministers although Ministers of State can also be part of the Committees. (Some Ministers are Special Invitees).
- The **First Schedule** of the Rules has listed **8 Standing Committees** and their respective functions viz., **Appointments Committee**, Cabinet Committee on **Accommodation**, **Economic Affairs**, **Parliamentary Affairs**, **Political Affairs**, **Security**, **Investment and Growth**, **Employment and Skill Development**.
- states that the Prime Minister may from time to time **amend the Schedule** by **adding to or reducing the numbers of such Committees** or by **modifying the functions** assigned to them.
- The **composition of Standing Committees** can be **altered by the Prime Minister** (how many or which Ministers to be included in the Committee).
- According to **Rule 6(4)**, **Ad hoc Committees of Ministers** including Group of Ministers may be appointed by the Cabinet, the Standing Committees of the Cabinet or by the Prime Minister for **investigating**, **reporting** or **taking decisions** (if authorized) on **specific matters**.
- Any decision taken by a Standing or Ad hoc Committee may be reviewed by the Cabinet.
- Rule 6(7) states that no case which concerns more than one Department shall be brought before a Standing or Ad hoc Committee of the Cabinet until all the Departments concerned have been consulted.

Article 77(3) of the Constitution

The President shall make rules for the more convenient transaction of the business of the Government of India, and for the allocation among Ministers of the said business.

The Government of India (Transaction of Business) Rules, 1961 have been made by the President under the authority of Article 77(3).

6. Amendments to the Administrative Powers of the Lieutenant Governor of J&K

News: The Union Ministry of Home Affairs (MHA) has widened the ambit of the administrative role of the Lieutenant Governor (L-G) of Jammu and Kashmir by amending the Transaction of Business Rules.

Status of J&K

- On August 5, 2019, Jammu and Kashmir **lost its special status under Article 370** and was reorganized into two Union Territories: Jammu & Kashmir and Ladakh.
- Since June 2018, J&K has been under Central rule. The Supreme Court has mandated elections before September 30, 2024.

Key Amendments

- The Union Ministry of Home Affairs (MHA) amended the **Transaction of Business Rules** under **Section 55 of the Jammu and Kashmir Reorganisation Act, 2019**.
- The amendments enhance the administrative authority of the Lieutenant Governor (L-G) of J&K.

- o **Police and Public Order**: The L-G now has enhanced authority in matters relating to police, public order, and the All India Service (AIS).
- o **Finance Department Concurrence**: Proposals requiring prior concurrence of the Finance Department in these areas must first be placed before the L-G through the Chief Secretary.
- o **Appointments and Transfers**: Decisions on appointments of Advocate-General, Law Officers, and prosecution sanctions must also be approved by the L-G through the Chief Secretary.
- o **Specific Provisions**: The Department of Law, Justice, and Parliamentary Affairs is mandated to seek approval from the L-G for appointments and legal matters.
- o **Matters concerning prisons**, the Directorate of Prosecution, and the Forensic Science Laboratory are now within the purview of the L-G's decision-making process.

7. States Can't Alter the Scheduled Caste List Published Under Article 341: SC

News: The Supreme Court has said that the States can't make changes to the Scheduled Castes (SC) list published under the Article 341 of the Constitution.

About the SC Judgment

- Prior to 2015, the **Tanti-Tantwa community** had been classified as an **Extremely Backward Class** (EBC). In July 2015, the Government of Bihar had issued a notification to **include the community into the SC List**. The notification was upheld by the Patna High Court but was challenged in the Supreme Court.
- The Supreme Court has held that the **State Government has no authority to change the list of Scheduled Castes** published under the Article 341.
- The Court called the notification '**mala fide**' and has directed that the community should be reverted to its original classification as EBC.
- The Court also directed that the members of the community who have benefited from the notification should be accommodated under their original EBC category.
- The Judgement reaffirms the constitutional scheme that **only** Parliament **can make changes to the SC list**. By calling the Judgment as 'unpardonable mischief', the Supreme Court has sent a warning to all States that they should refrain from such changes in the future.

Article 341

(1) The **President** may with respect to any State or UT, after consultation with the (State) Governor, by public notification, specify the castes, races or tribes or parts of such group which shall for the purposes of this Constitution be deemed to be Scheduled Castes in **relation to that State or UT**.

(2) **Parliament** may by law include in or exclude from the list of Scheduled Castes specified in a notification issued under clause (1) any caste, race or tribe.

Procedure to Add/Remove Communities to the SC List

- The proposal to add/remove a community is **initiated by the State Government**.
- The proposal is forwarded to the Ministry of Social Justice and Empowerment.
- After taking in the inputs and approvals from the **Registrar General of India** and the **National Commission for Scheduled Castes**, the proposal is forwarded to the Cabinet for its approval.
- Subsequently, an Act is passed in the Parliament to bring the recommended changes. The amendments to the list are final after the approval of the Act by the President.

8. Defamation Case Against Wikipedia

News: News agency Asian News International (ANI) has filed a defamation case against Wikipedia in the Delhi High Court. ANI claims that Wikipedia has allowed defamatory content about ANI on its platform.

Provisions Invoked in the Case

- **IT Act, 2000**: ANI's legal argument involves provisions under the **Information Technology (IT) Act, 2000**, concerning the **liability of intermediaries** for **user-generated content**.
- **Section 2(1)(w)**: It defines "intermediary" as any person who on behalf of another person **receives**, **stores**, or **transmits the message** or provides any service with respect to that message.
  - ANI argues that Wikipedia qualifies as an intermediary under this definition.
- **Section 79**: Section 79 of the IT Act provides a "safe harbour" for intermediaries. **Intermediaries are not liable for third-party content** if they **meet certain conditions**.
  - **Section 79(1)**: Grants exemption from liability to intermediaries for third-party content.
  - **Section 79(2)**: Outlines conditions under which this exemption applies, including not initiating the transmission, not selecting the receiver, and not modifying the information contained in the transmission.
- **Exceptions to Protection**: Protection is not applicable if intermediaries **don't remove harmful content** after being informed by the Government. Intermediaries must not tamper with evidence of messages or content.
- **Intermediary Guidelines and Digital Media Ethics Code (2021)**: These guidelines require intermediaries to:
  - Implement a grievance redressal mechanism.
  - Appoint a Grievance Officer to handle complaints.
  - Ensure due diligence by removing or disabling access to unlawful content within a specified timeframe upon receiving complaints. *(Refer EPIC March 2023 for Safe Harbour Rule and EPIC July 2022 for Impact of IT Rules 2021).*

9. Rules and Regulations Governing Conduct of Civil Servants

News: A probationary IAS Officer has been accused of submitting false documents related to OBC and physical handicapped quota related to the services.

About the Rules Governing Civil Servants

The All-India Services (Conduct) Rules, 1968

- **Scope and Applicability**: These rules apply to IAS, IPS, and Indian Forest Service officers from the moment they are assigned their service and start training.
- **Rule 3(1)**: It requires **complete integrity and dedication to duty** while prohibiting actions that are inappropriate for a service member.
- **Rule 4(1)**: It prohibits officers from using their position to secure jobs for family members in private companies or NGOs and **clearly defines what constitutes "unbecoming" behavior**.
- **Additions in 2014**: It emphasizes **high ethical standards**, **integrity**, and **honesty**, while promoting political neutrality, accountability, and transparency. It **encourages responsiveness** to the public, especially the vulnerable groups, and mandates **courtesy** and **good behavior** towards the public.
- **Rule 11(1)**: Officers may **accept gifts from close relatives** or **friends with no official ties** during events like weddings, anniversaries, funerals, and religious functions. However, gifts valued over INR 25,000 must be reported to the government, a threshold updated in 2015.
- **Decision-Making Guidelines**: Decisions must be made solely in the **public interest**, and officers must **declare any private interests related to their duties**. They are prohibited from placing themselves under financial obligations and must not misuse their position for personal or family benefits.

Indian Administrative Service (Probation) Rules, 1954

- **Applicability**: The Rules govern officers during their probation period, which lasts for about 2 years after selection and includes training at LBSNAA in Mussoorie.
- **Entitlements**: During probation, officers receive a fixed salary and travel allowance but do not have the same benefits as confirmed IAS officers, such as an official car, accommodation, an office with staff, or a constable.

- **Rule 12**, **Discharge of Probationers**: These include the Central Government finding a probationer "ineligible for recruitment", "unsuitable for service", neglecting probationary duties, or lacking the necessary "qualities of mind and character".
- **Enquiry Process**: A summary inquiry is conducted before issuing the discharge orders, and the committee submits its report within 2 weeks. (*Read more about Reforms in Civil Services*).

Consequences of furnishing False Information

- According to a 1993 DoPT circular, Government servants who provide false information or certificates **should not remain in service**. This rule applies to both **probationers**, who are "**discharged**" and **confirmed officers**, who are "**dismissed**".
- However, dismissals can be challenged in court, the Central Administrative Tribunal (CAT), and the National OBC Commission, leading to lengthy legal battles during which the officer may remain in service.

10. Enemy Agent Ordinance (J&K)

News: The Director General of Police (DGP) of Jammu and Kashmir has said that those assisting militants in J&K should be tried under Enemy Agents Ordinance, 2005 instead of UAPA.

About J&K Enemy Agents Ordinance

- The J&K Enemy Agents Ordinance was **first issued in 1917** by the **Dogra Maharaja of Jammu and Kashmir**. During the Dogra rule, all laws were called Ordinances.
- In 2019, when **Article 370** was repealed, the legal system of Jammu and Kashmir underwent several changes. The Ranbir Penal Code was replaced by the Indian Penal Code. However, the Enemy Agents Ordinance and Public Safety Act were retained.
- The Ordinance states that anyone **who is an enemy agent** or **helps the enemy in any way**, such as by conspiring to harm Indian military or air operations, endangering lives, or committing arson, can be **punished with death**, **life imprisonment**, or **rigorous imprisonment for up to 10 years**. Additionally, they can be fined.
- Trials under this ordinance are **conducted by a special judge** appointed by the Government in consultation with the High Court.
  - The **accused person cannot hire a lawyer for defense unless the court allows it**. There is **no option to appeal the verdict**.
  - The decision made by the special judge can only be reviewed by a person chosen by the Government from the High Court judges, and this decision is final.
- The Ordinance also **prohibits disclosure or publication of the case details**. Anyone who shares information about the proceedings or about the individuals involved without the permission of the Government can be punished with up to two years of imprisonment, a fine, or both.

11. Co-habitation in France

News: The fragmented mandate in the French elections has given rise to the possibility of Cohabitation.

About Cohabitation

- Cohabitation is a situation in French Polity when the **President and the Prime Minister belong to different political parties**.
- France is a **semi-Presidential**, **representative Parliamentary democracy**, with clearly defined roles for the President and the Prime Minister. Political Scientists have called France as the '**double-headed executive**'.
- The **President of France** is **elected directly** for a term of **5 years** and serves as the **Head of the State** and **Commander of the Armed Forces**.

  - She enjoys regulatory power, exercising control of all decisions on matters of **foreign policy and defence**.
- The Parliament of France, **National Assembly**, is **headed by the Prime Minister** and is responsible for all **domestic policy decisions**. The **Cabinet is appointed by the President** on the **PM's recommendation**.
- The situation of Cohabitation arises when the political party of the President does not get a majority in the National Assembly, leading to appointment of Prime Minister from a different party or coalition.
- The **President can't dismiss the Prime Minister**, but can request her resignation.
- Cohabitation has occurred 3 times in the past (1986-88, 1993-95, 1997-2002).
- It results in marked by **administrative logjam** and **friction between the Executive and the State**.

About French Legislature

- The **French Parliament** is a **bicameral legislature** consisting of an upper house, the **Senate,** and a lower house, the **National Assembly**.
- The **National Assembly has 577 seats** including from 13 overseas districts and 11 constituencies that represent French expats abroad. A party needs 289 seats to secure an absolute majority.
- The elections are held in 2 rounds. The first round serves as an eliminator for those candidates who fail to win 12.5% of locally registered votes. Additionally, any candidate with 50% of the vote and at least 25% local electoral turnout wins automatically in a few constituencies.
- The term of **National Assembly is 5 years**; however, the **President may dissolve the Assembly** earlier.

Policy

1. SEHER Programme

News: The Women Entrepreneurship Programme (WEP) has launched the SEHER Programme.

About SEHER Program

- It has been launched by **Women Entrepreneurship Platform** (WEP) and TransUnion CIBIL.
- SEHER aims to **increase financial awareness among women entrepreneurs** in India. The program also aims to promote the **importance of a good credit history** and CIBIL score for easier access to finance.
- SEHER will offer personalized resources, financial literacy content, and tools to women entrepreneurs.
- The program will help women **understand and manage credit** which is crucial for growth of business.
- Its key goals include:
  - **Financial Literacy**: Educate women on financial topics, including their CIBIL Rank and commercial credit reports.
  - **Business Skills**: Provide resources and training to help women manage and grow their businesses.
  - **Access to Finance**: Help women understand how to access and manage credit effectively.

Importance of Women Entrepreneurs in India

- India has 63 million Micro, Small, and Medium Enterprises (MSMEs), with **20% owned by women**.
- Women-owned businesses employ around **27 million people**.
- Accelerating women's entrepreneurship could create over 30 million new businesses and up to **170 million new jobs**.
- Business loan demand by women has grown 3.9 times from FY2018-19 to FY2023-24.
- 38% of the 1.5 crore borrowers with a business loan in March 2024 were women.

About Women Entrepreneurship Platform (WEP)

- WEP was established by NITI Aayog in 2018 and became a public-private partnership in 2022.

- WEP supports women entrepreneurs by providing access to finance, market linkages, training and skills development, mentoring and networking, and business development services.

2. Drone Didi Initiative

News: The Drone Didi initiative aims to empower women in the agriculture sector.

About the Drone Didi Initiative

- The aim of the initiative is to **modernize agriculture**, **improve crop yields**, and **reduce labour costs** while **empowering rural women** through new skills and job opportunities in **drone technology**.
- Its objectives include:
  - **Empower Women**: Train and equip women from SHGs to operate and manage drones for agricultural tasks.
  - **Enhance Productivity**: Use drones for precision farming, nutrient application, and crop monitoring.
  - **Promote Technology**: Integrate drone technology into everyday agricultural practices.
  - **Create Jobs**: Generate employment for rural women as drone pilots, mechanics, and in manufacturing of drones.
  - **Support Self-Reliance**: Reduce dependence on imported fertilizers and support the 'Atmanirbhar Bharat' initiative.
- The components of the scheme include:
  - **Drone Distribution**: Provide drones to 15,000 women SHGs for rental to local farmers.
  - **Training**: Offer training for women in SHGs on drone operation and maintenance.
  - **Support Systems**: Establish maintenance and repair support for drones.
  - **Integration**: Incorporate drone technology into traditional farming practices.
  - **Job Creation**: Develop job roles related to drone technology in agriculture.

3. *Sampoornata Abhiyan*

News: NITI Aayog has launched '*Sampoornata Abhiyan*'; a 3-month campaign to achieve saturation of 6 key indicators each in Aspirational Districts and Aspirational Blocks across India.

About *Sampoornata Abhiyan*

- It is a 3-month campaign initiated by NITI Aayog.
- Its aim is to achieve saturation of 6 key indicators each in **Aspirational Districts** and **Aspirational Blocks**.
- The Aspirational Districts Programme (ADP) targets **112 Aspirational Districts** and the Aspirational Blocks Programme (ABP) targets **500 Aspirational Blocks**.

Key Indicators for Aspirational Districts

- Number of Soil Health Cards distributed.
- Percentage of schools with functional electricity at the secondary level.
- Percentage of children fully immunized (9-11 months) (BCG + DPT3 + OPV3 + Measles 1).
- Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester.
- Percentage of pregnant women taking Supplementary Nutrition under the ICDS Programme regularly.
- Percentage of schools providing textbooks to children within 1 month of the start of the academic session.

Key Indicators for Aspirational Blocks

- Percentage of persons screened for Diabetes against the targeted population.
- Percentage of persons screened for Hypertension against the targeted population.
- Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester.
- Percentage of pregnant women taking Supplementary Nutrition under the ICDS Programme regularly.

- Percentage of Soil Health Cards generated against the soil sample collection target.
- Percentage of Self-Help Groups (SHGs) that have received a Revolving Fund against the total SHGs in the block.

About Aspirational Districts and Aspirational Blocks Programme

Aspirational Districts Programme	Aspirational Blocks Programme
Launched in 2018 by NITI Aayog	Launched in 2023 by NITI Aayog
Aim: To quickly and effectively transform 112 districts across India.	**Aim**: Saturation of essential Government services in 500 Blocks (329 Districts) across India.
Themes • Health & Nutrition • Education • Agriculture & Water Resources • Financial Inclusion & Skill Development • Infrastructure	**Themes** • Health & Nutrition • Education • Agriculture and Allied Services • Basic Infrastructure • Social Development
Indicators: The progress is measured on 81 indicators of development.	**Indicators**: The progress is measured on 40 indicators of development.

4. The Telecommunications Act, 2023

News: The Union Government has issued Gazette Notification for enforcing various sections of the Telecommunications Act, 2023.

About the Telecommunications Act, 2023

- It aims to **update and unify the laws** related to **developing**, **expanding**, and **operating telecommunication services** and **networks**. It also covers the **assignment of spectrum** and other related matters.
- The Act has replaced older laws like the **Indian Telegraph Act, 1885**, and the **Indian Wireless Telegraph Act, 1933**, due to **significant technological advancements** in the telecom sector.
- The Act promotes **digital implementation**, including **online dispute resolution** and other frameworks.
- It is guided by principles of **Inclusion** (*Samavesh*), **Security** (*Suraksha*), **Growth** (*Vriddhi*) and **Responsiveness** (*Tvarit*).

Key Features

- The Act clearly defines various telecom-related terms. This **reduces uncertainties** and **improving investor confidence**, which aids in ease of doing business.
- It provides an effective **Right of Way** (RoW framework) for both public and private properties. It includes government agencies, local bodies, and PPP projects like airports, seaports, and highways. Public entities shall be **obligated to provide right of way except in special circumstances**. *RoW is an easement to construct and maintain infrastructure over or under private land. Easement is a nonpossessory right to use and/or enter onto the real property of another without possessing*.
- Telecommunication infrastructure will be **considered separate from the property it is on**. This will **reduce disputes** when the property is sold or leased.
- The Union Government will establish **common ducts and cable corridors**, in line with the vision of **PM Gati Shakti**.
- It empowers setting standards and conformity assessments for telecommunication services, networks, and security to **ensure national security** and **promote Indian technology**.

- The scope of the **Universal Service Obligation Fund** has been expanded to include supporting universal services in underserved (rural, remote and urban) areas and fund research and development of telecom services and technologies. *(Refer EPIC December 2023 for Telecommunication Act, 2023).*

5. *Krishi Sakhi* Convergence Programme

News: The PM granted certificates to over 30,000 women from Self Help Groups (SHGs), recognizing them as '*Krishi Sakhis*' under the *Krishi Sakhi* Convergence Programme (KSCP).

About the Krishi Sakhi Convergence Program

- It aims to **empower rural women by training** and certifying them as ***Krishi Sakhis***, who serve as **para-extension workers**. Krishi Sakhis are trusted community resource persons and experienced farmers.
- It is an initiative of the **Ministry of Agriculture and Farmers' Welfare** and **Ministry of Rural Development**.
- Its objective is to transform rural India by empowering women through **agricultural training**.
- It aligns with the broader '***Lakhpati Didi***' program, which aims to create **3 crore *Lakhpati Didis*** (women earning at least INR 1 lakh per annum) by **enhancing their agricultural skills** and **providing employment opportunities**.
- *Krishi Sakhis* are being trained on various modules like **Agro Ecological Practices** from land preparation to harvesting; **Seed banks** (Establishment and Management); **Natural Farming**; **Soil health**, **soil and moisture conservation practices**; **Integrated Farming Systems**; **Basics of Livestock Management** and Basic communication skills.
- In the first phase, it has been rolled out in 12 States.

Krishi Sakhis under Mission Organic Value Chain Development for North Eastern Region Scheme

- **Local Resource Persons (LRP)**: 30 Krishi Sakhis are working as Local Resource Persons.
- **Farm Visits**: They visit each farm once a month to check on farm activities and understand the challenges faced by farmers.
- **Weekly Meetings**: They conduct weekly meetings with **Farmer Interest Groups** (FIG) to **train farmers** and discuss their issues.
- **Farmer Interaction**: *Krishi Sakhis* interact with farmers to understand their problems, help with **Farmer Producer Organisation** (FPO) functioning, and assist with **marketing activities**.
- **Record Keeping**: They maintain a farmer diary to keep track of all activities and challenges. For their efforts, Krishi Sakhis receive a resource fee of INR 4,500 per month.

6. e*Sakshya* App

News: The Government is testing the e*Sakshya* App along with the launch of new criminal laws.

About e*Sakshya* App

- The eSakhsya app is a **mobile-phone application** to help police **record crime scenes**, **conduct searches**, and **seizures in criminal cases**.
- It enables police to **upload recorded evidence** to a cloud-based platform.
- The app aims to create uniformity in investigations, potentially increasing the conviction rate.
- The app has been developed by the **National Informatics Centre** (NIC). It will be available to all police stations for registration and download.
- The App has several unique features.
  - Each recording can be a maximum of 4 minutes long, with multiple files uploadable per FIR.

  - If there are connectivity issues, police can record on personal devices, generate a hash value, and upload the file later.

Challenges

- Procuring hardware and cloud space is expensive, and many States lack resources.
- Maintaining the sanctity of the chain of evidence submission is crucial to prevent benefiting the accused.
- Forensic evidence integrity is essential, and any issues in procuring digital evidence could lead to criminals escaping justice.

7. National Forensic Infrastructure Enhancement Scheme (NFIES)

News: The Union Cabinet has approved the Central Sector Scheme National Forensic Infrastructure Enhancement Scheme (NFIES).

About the National Forensic Infrastructure Enhancement Scheme (NFIES)

- The scheme aims to enhance forensic infrastructure by establishing **off-campus laboratories** of the **National Forensic Sciences University** in 28 States and all UTs.
- Its components include:
  - Establishment of Campuses of the **National Forensic Sciences University (NFSU)** across the country.
  - Establishment of **Central Forensic Science Laboratories**.
  - **Enhancement of existing infrastructure** of the Delhi Campus of National Forensic Science University.
- It aims to **address the shortage of trained forensic manpower,** strengthening the capacity and capabilities of the National Forensic Sciences University.
- With the implementation of new criminal laws (which mandate forensic investigation for offences with punishment 7 years or more), it is expected that the workload of forensic science laboratories will rise rapidly. The scheme is intended to **reduce the caseload and pendency** through the expanded infrastructure.
- High-quality, trained forensic professionals are expected to contribute to an efficient criminal justice process.
- The Government intends to achieve high conviction rate of more than 90% and the scheme will help achieve this objective.

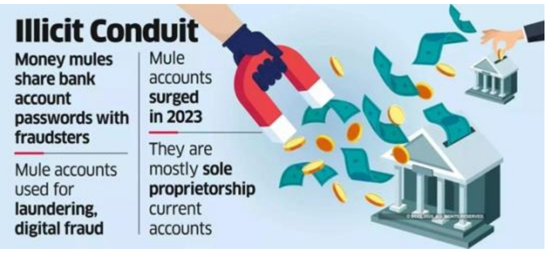
Economy

1. Money Mule

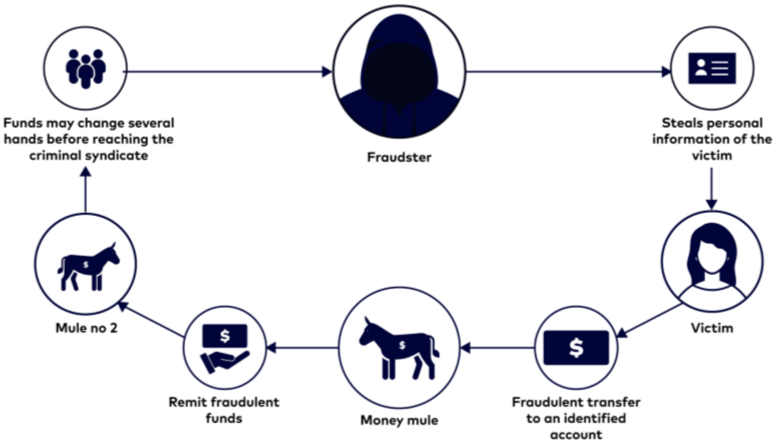
News: Several major banks have stopped/slowed down opening sole proprietorship and individual current accounts of firms that are less than a year old. It is suspected that they could be 'money mules' for laundering and digital frauds.

About Money Mule

- Money mules are persons who let their bank accounts be **used by launderers** and shysters to **move the proceeds of crime**. They help transfer or move money on behalf of someone else.
- Criminals recruit money mules to help them **launder money** gained from online scams, frauds, and other crimes such as human and drug trafficking.


Illicit Conduit
Money mules share bank account passwords with fraudsters
Mule accounts used for laundering, digital fraud
Mule accounts surged in 2023
They are mostly sole proprietorship current accounts

- They **create layers of separation** between the victims of the crime and the criminals. This makes it more **challenging for law enforcement to trace the money** back to the original source.
- They can move funds in various ways, including bank accounts, cashier's checks, virtual currency, prepaid debit cards and money service businesses.
- Criminals use **fake job advertisements** or **social media posts** about **quick money-making opportunities** to recruit potential money mules.
- While some money mules willingly participate, many others are unaware that they are inadvertently helping the movements of a proceeds of crime.
- Money mules **often receive a commission** for their services or might assist because they believe they have a trusting relationship with the person asking for help.
- When such frauds are reported, money mules become targets of police investigations. Even if they are not directly involved in the crimes that generate the money, they are **considered accomplices** because they help launder the proceeds of these crimes.

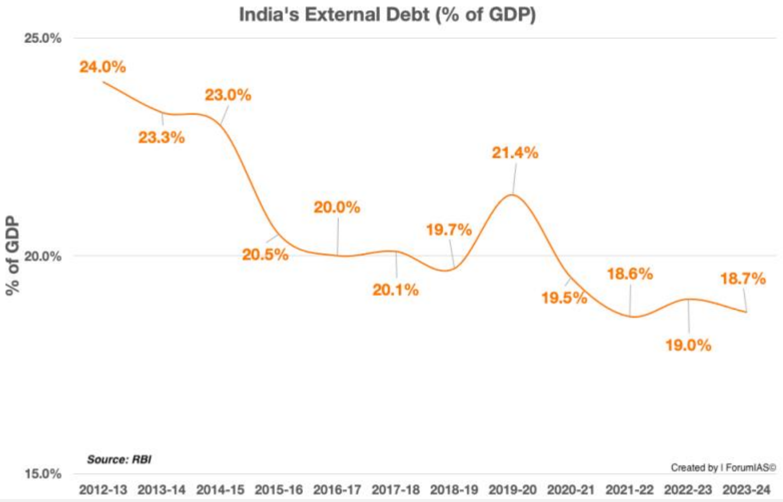

Funds may change several hands before reaching the criminal syndicate
Fraudster
Steals personal information of the victim
Mule no 2
Victim
Remit fraudulent funds
Money mule
Fraudulent transfer to an identified account

2. Status of India's External Debt

News: India's external debt rose by US$ 40 billion in FY2023-24 to reach US$ 664 billion.

About India's External Debt

- External debt is the money **borrowed from external or foreign sources**, that is repaid in the foreign (borrowed) currency *(though some amount of foreign debt can also be denominated in domestic currency)*.
- External debt is owed to **foreign commercial banks**, **international financial institutions** (like IMF), **foreign sovereign funds** or **foreign Governments**.
- Even though India's external debt rose in absolute terms, the external debt-to-GDP ratio fell from 19% in March 2023 to 18.7% in March 2024.



Source: RBI. India's External Debt has shown a declining trend (as % of GDP).

- The long-term debt (with original maturity of above 1 year) stood at US$ 541.2 billion (81.5% of total external debt), rising by US$ 45.6 billion from March 2023.
  - The **share of short-term debt** (with original maturity of up to 1 year) in **total external debt** declined to 18.5% (March 2024) from 20.6% (March 2023).

- The **ratio of short-term debt** (original maturity of up to 1 year) to **foreign exchange reserves** declined to 19% at end-March 2024 (22.2% at end-March 2023).
- The proportion of foreign debt according to currencies is **US$ 53.8%**, **INR 31.5%**, **Yen¥ 5.8%**, **Euro€ 2.8%** and **SDRs 5.4%**.
- The external debt is owed by Non-financial corporations (37.4%), Deposit-taking corporations (28.1%), General Government (22.4%) and Other financial corporations (7.3%).
- The foreign debt is composed of **Loans** (33.4%), **Currency and deposits** (23.3%), **Trade credit and advances** (17.9%) and **Debt securities** (17.3%).

3. RBI Joins Project Nexus

News: RBI has joined Project Nexus to expand the international reach of UPI.

About Project Nexus

- It's a **multilateral international initiative** to enable **instant cross-border retail payments** by **interlinking** domestic **Fast Payments Systems** (FPSs).
- Project Nexus has been conceptualised by the **Innovation Hub** of the **Bank for International Settlements** (BIS).
- It is the first BIS Innovation Hub project in the payments area to move towards live implementation.

Bank for International Settlements (BIS)

BIS was established in 1930, initially to oversee the settlement of World War I reparations.

It is owned by **63 Central Banks** of countries that together account for ~**95% of global GDP**.

It is based in **Basel**, **Switzerland**.

BIS also hosts the **Basel Committee on Banking Supervision** that developed the **Basel Norms** for Banking regulation.

- The project aims to **standardize the way Instant Payment Systems** (IPS) **connect to each other**. This avoids the need for payment system operators to build custom connections for each new country, simplifying the process.
- The founding members include Malaysia, the Philippines, Singapore, Thailand, and India. Indonesia will also join the Nexus platform.
  - These countries signed an agreement with BIS on June 30, 2024, in Basel, Switzerland.

Key Features and Benefits

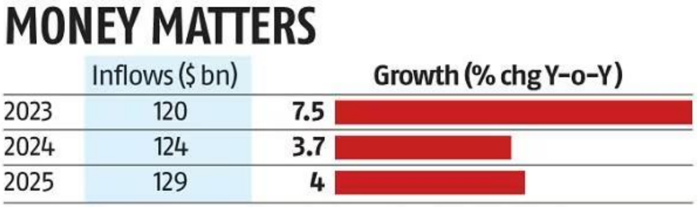
- **Instant Cross-Border Payments**: Nexus allows cross-border payments to be completed within 60 seconds in most cases. It enhances the speed and efficiency of international payments.
- **Single Connection Platform**: Operators can connect to the Nexus platform once, gaining access to all other countries on the network. This single connection significantly **accelerates the growth of instant cross-border payments**.

4. Slowdown in Remittances

News: According to the World Bank the growth rate of remittances to India is likely to fall to 3.7% (year-on-year basis) compared to 7.5% growth in 2023.

About Remittances

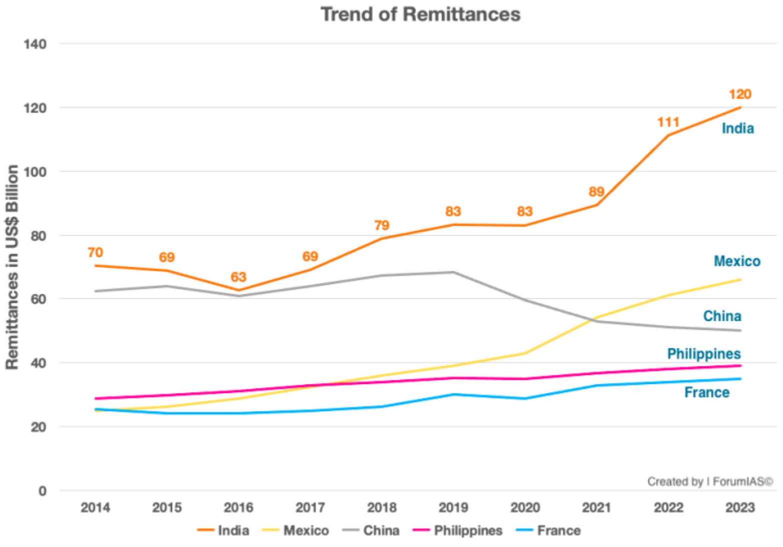
- Remittances are **funds sent back by migrants in foreign countries to their home country**.
- Remittances are an **importance source of foreign exchange** for countries like India.



MONEY MATTERS

	Inflows ($ bn)	Growth (% chg Y-o-Y)
2023	120	7.5
2024	124	3.7
2025	129	4

- Migrants send the money to their families which can be utilized for expenses related to health, education or improving the living conditions in general. Hence, remittances **support economic growth** of the domestic economy.
- India received remittances worth **US$ 120 billion in 2023** and are expected to rise to US$ 124 billion in 2024 and US$ 129 billion in 2025. India was followed by **Mexico** (US$ 66 billion), **China** (US$ 50 billion), and the **Philippines** (US$ 39 billion).
- **India** also remained the **largest origin country of emigrants** (18.7 million), followed by Ukraine (11.9 million), China (11.1 million), Mexico (11 million), and Venezuela (8.9 million).
- The remittances to India have been driven by **skilled professional migrants** from the US, UK, Singapore and Australia etc. Apart from this, large remittances also from the **Gulf countries** where **high energy prices** have given rise to **economic boom** and more jobs for Indian migrants.
- In addition, **improvements in remittance channels** like UPI for Singapore, France, the UK, the UAE etc. have enabled quicker transfer of money.



5. Utilizing GST Data for Analysing Consumption Trend

News: Economists have argued that the GST data can provide valuable insights into consumption trends which can be useful in policymaking.

Significance of GST Data

- GST is a **consumption-based tax**, accruing to the State where **goods are consumed**, rather than where they are produced. Thus, **State-level GST data** can indicate sub-national **private consumption trends**, which is beneficial because **high-frequency data on private consumption is lacking in India**.
- Analyzing GST data from different States reveals consumption nuances and **economic trends**. This provides valuable information for both policymakers and businesses.
- GST data can yield valuable insights into **consumption patterns**, **import contributions**, and consumption of **climate-sensitive items** across States. This will help in enhancing understanding about the economy.
- **GST compensation cess** data that is imposed on **luxury and harmful goods** can help in understanding the consumption trends associated with these products e.g., Kerala had the smallest amount of compensation cess collected per person, while Chhattisgarh had the largest, mainly because of the State's **significant use of tobacco and coal**.
- There is a **strong positive correlation** between **per capita GST collections** and **per capita incomes** across States, indicating that **richer states have a higher propensity to consume**.
- There is a positive relationship between the **share of urban population and per capita GST collections**, implying that **urbanization propels private consumption**.
- GST data can become a more real-time measure of consumption expenditure and provide **data-led insights into the economy at both National and State levels**.

6. 53rd GST Council Meeting

News: 53rd meeting of the GST Council was held recently.

Key Outcomes of the GST Meeting

- **Exemption Decisions**: The GST Council exempted hostel accommodation up to INR 20,000 per month and railway services like platform tickets from GST, reducing costs for students and rail passengers.
- **Rate Unification**: A uniform GST rate of 12% was set for packing cartons, milk cans, and solar cookers, eliminating inconsistencies in tax rates based on materials or technology.
- **Interest and Penalty Waivers**: Interest and penalties on tax dues from the first three years of GST implementation will be waived if paid by March 2025, providing relief to taxpayers.
- **Appeal Pre-deposits**: The required pre-deposits for filing appeals were lowered, making the appeals process less burdensome for businesses.
- **Anti-profiteering Clause**: The anti-profiteering clause was removed, which had required companies to pass on tax cut benefits to consumers.
- The Council also plans to implement **Aadhaar authentication for GST registrations** to prevent fraud through fake invoices and make the process more compliant and efficient.
- **New Monetary Limits for Filing Appeals**: The GST Council has recommended new monetary thresholds for filing appeals by the department. The limits are INR 20 lakh for the GST Appellate Tribunal, INR 1 crore for High Court, and INR 2 crore for the Supreme Court. The aim is to reduce litigation by the Government.

Future Plans Discussed at the Council Meeting

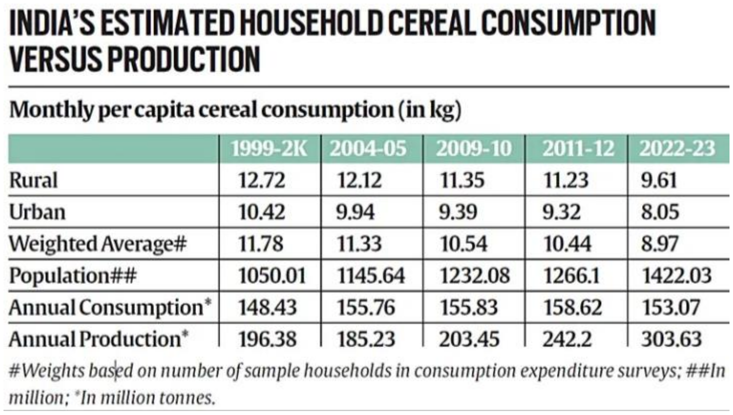
- **Review of GST Rate Structure**: The Council discussed plans to review the GST rate structure, particularly the multiple-rate system that was last planned for rationalization in 2021 but has been inactive since then.
- **Extension to Excluded Items**: Plans to bring previously excluded items like petroleum and electricity under the GST umbrella were mentioned, indicating a possible expansion of the GST net.
- **Tax Rate Adjustments**: There is an intention to possibly adjust tax rates in the future, aiming to better align them with economic needs and simplifications.

7. Trend of Production and Consumption of Cereals in India

News: The level of production and consumption of cereals has changed considerably over the last 2 decades.

Changing Trends of Production and Consumption

- India's cereal **production has increased significantly**, rising from 196.4 million tonnes (MT) in 1999-2000 to 303.6 MT in 2022-23.
- According to **National Sample Survey Office's** latest **HCES report**, the **amount of cereals consumed per person has decreased steadily**.
  - In rural areas, it dropped from 12.72 kg to 9.61 kg per month, and in urban areas, from 10.42 kg to 8.05 kg per month between 1999-2000 and 2022-23.



INDIA'S ESTIMATED HOUSEHOLD CEREAL CONSUMPTION VERSUS PRODUCTION

Monthly per capita cereal consumption (in kg)

	1999-2K	2004-05	2009-10	2011-12	2022-23
Rural	12.72	12.12	11.35	11.23	9.61
Urban	10.42	9.94	9.39	9.32	8.05
Weighted Average#	11.78	11.33	10.54	10.44	8.97
Population##	1050.01	1145.64	1232.08	1266.1	1422.03
Annual Consumption*	148.43	155.76	155.83	158.62	153.07
Annual Production*	196.38	185.23	203.45	242.2	303.63

*#Weights based on number of sample households in consumption expenditure surveys; ##In million; *In million tonnes.*

- The **use of cereals is rising in processed form** like bread, biscuits, cakes, noodles, etc. There is growing application in animal feed, starch production, and ethanol fuel.

- Production of "other cereals" such as maize, barley, and millets (coarse cereals) amounted to 57.3 MT.
  - Direct household consumption of these grains was less than 5 million tonnes. These cereals were mainly consumed indirectly through animal products.
- The **gap between production and consumption widened** from 48 MT in 1999-2000 to ~151 MT in 2022-23.

Use of Surplus

Cereal Exports

- Exports totalled 30.7 MT in 2022-23 (22.3 MT rice, 4.7 MT wheat, 3.6 MT other grains).
- In 2021-22, there were record exports of 32.3 MT.

Food Processing and Industrial Applications

- Estimated 38 MT used in processed food forms (bread, biscuits, noodles, etc.).
- ~ 50-55 MT used for feed, starch making, and fermentation.
- **Maize utilization**: 90% or more of the 38.1 MT produced are used in poultry, livestock, and aqua feed or for wet-milling and starch production.
- **Ethanol Production**: Cereals are increasingly being used in multi-feed distilleries for ethanol production. The Government program aims for 20% ethanol blending in petrol.

Public Distribution System and Food Security

- **Government Procurement**: 56.9 MT of rice and 26.2 MT of wheat was procured in 2022-23. Procurement exceeds the annual cereal requirement of 59-60 MT for the public distribution system (PDS).
- **National Food Security Act (NFSA)**: 813.5 million persons receive 5 kg of wheat or rice per month through PDS. PDS entitlement covers more than half of the monthly per capita cereal consumption.

Issues with Surplus Production

- **Impact on Government Stocks**: Agencies like the Food Corporation of India are accumulating large stocks by procuring more than the total annual requirement for public distribution under the NFSA.
- **Conflicting Indicators**: There is high cereal inflation (8.69% year-on-year in May) despite export restrictions. Further, the Government warehouse stocks have depleted (16-year low for wheat on June 1).
  - This raises questions about the accuracy of official production estimates.

8. Container Port Performance Index, 2023

News: Indian Ports have performed well in the Container Port Performance Index, 2023.

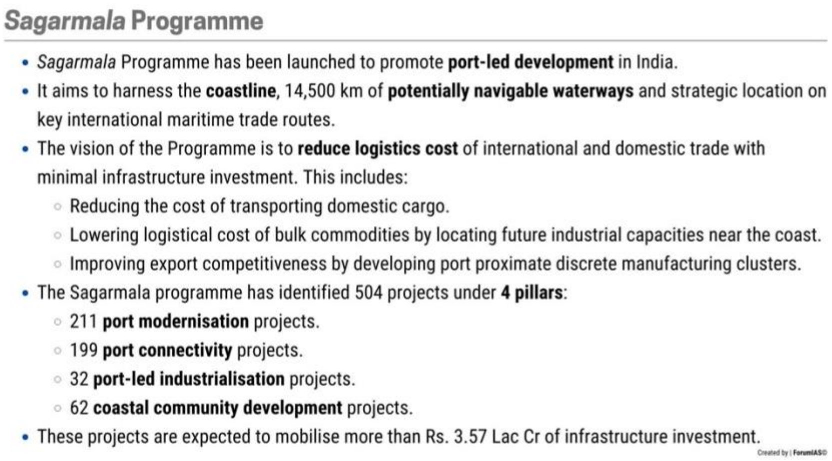
About the Container Port Performance Index

- The index is published by the **World Bank** and the **S&P Global Market Intelligence**.
- It gives **comparable assessment** of **performance of ports** based on **vessel time in ports**. It ranks 405 container ports globally.
- Its primary aim is to identify **areas for enhancement** for the **benefit of multiple stakeholders in the global trading system** and supply chains.
  - The index has been designed to act as a point of reference for important stakeholders in the global economy, including port authorities and operators, national governments, development agencies, and other public and private stakeholders in trade, logistics, and supply chain services.

Key Highlights of the Index 2023

- The top 5 positions have been taken by Yangshan (China), Salalah (Oman), Cartagena (Colombia), Tangier (Morocco) and Tanjung (Malaysia).

- **Visakhapatnam Port** jumped from 115 in 2022 to **19 in the 2023 rankings**, becoming the first Indian port to reach the Global Top 20.
- **Mundra Port** has risen to **27th rank** (48 in 2022).
- 7 other Indian ports have featured among top 100; **Pipavav** (41), **Kamarajar** (47), **Cochin** (63), **Hazira** (68), **Krishnapatnam** (71), **Chennai** (80) and **Jawaharlal Nehru** (96).



Sagarmala Programme

- *Sagarmala* Programme has been launched to promote **port-led development** in India.
- It aims to harness the **coastline**, 14,500 km of **potentially navigable waterways** and strategic location on key international maritime trade routes.
- The vision of the Programme is to **reduce logistics cost** of international and domestic trade with minimal infrastructure investment. This includes:
  - Reducing the cost of transporting domestic cargo.
  - Lowering logistical cost of bulk commodities by locating future industrial capacities near the coast.
  - Improving export competitiveness by developing port proximate discrete manufacturing clusters.
- The Sagarmala programme has identified 504 projects under **4 pillars**:
  - 211 **port modernisation** projects.
  - 199 **port connectivity** projects.
  - 32 **port-led industrialisation** projects.
  - 62 **coastal community development** projects.
- These projects are expected to mobilise more than Rs. 3.57 Lac Cr of infrastructure investment.

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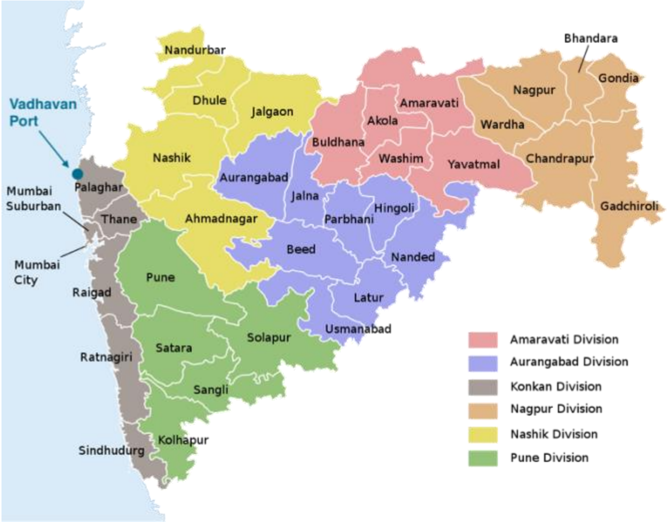
- The improved ranking of Indian ports is testament to the **Sagarmala Programme** and Government's efforts to modernise, mechanise and make them technologically savvy to improve performance and enhance efficiency. There has been a significant improvement via **operational efficiency** and service delivery in the **efficient handling of ships and cargo**.
- Vishakhapatnam Port has showcased strong performance with 27.5 moves per crane hour, a **turnaround time of 21.4 hours**, and minimal berth idle time. This highlights the port's efficiency in handling container ships and significantly impact customer preference. *(Refer EPIC October 2022 for Port Infrastructure in India).*

9. Vadhavan Port Project

News: The Union Cabinet has approved the INR 76,220 crore Vadhavan Mega Port Project.

Challenges faced by Indian Coastline

- At present, most of India's major ports offer depths ~14.5 meters and lack adequate depth to **accommodate large vessels**. Capesize ships, which are ultra-large carriers typically carrying around 170,000 deadweight tonnes (DWT), require a minimum water depth of at least 18 m to safely navigate and dock at ports.
- Large oil tankers and container ships cannot approach India's coastline due to its sprawling beaches, forcing them to unload their cargo at Colombo. Occasionally, they conduct mid-sea transfers of goods closer to Indian ports.


Vadhavan Port
Nandurbar
Bhandara
Gondia
Nagpur
Dhule
Jalgaon
Amaravati
Akola
Wardha
Buldhana
Nashik
Washim
Yavatmal
Chandrapur
Aurangabad
Palaghar
Mumbai Suburban
Jalna
Hingoli
Gadchiroli
Thane
Ahmadnagar
Parbhani
Beed
Nanded
Mumbai City
Pune
Raigad
Latur
Usmanabad
Solapur
Satara
Ratnagiri
Sangli
Kolhapur
Sindhudurg
Amaravati Division
Aurangabad Division
Konkan Division
Nagpur Division
Nashik Division
Pune Division

Significance of Vadhavan Port

Economic and Trade

- Vadhavan will be **developed as a mega port**. Mega ports can **handle very large ships** like Capesize vessels and at least **300 million metric tonnes of cargo per year**. Mega ports are crucial hubs for global trade and shipping. Vadhavan will be India's first true mega port (300+ MMTPA capacity). It offers several economic advantages:
  - Lower freight costs per unit with larger volumes.

  - Ability to handle a wider range of goods than smaller ports, which are typically focused on dry or bulk cargo like JNPA and Mundra.
  - Capacity to host diverse suppliers, industrial complexes, and logistics firms, promoting **economies of agglomeration**.
  - Competition among operators, leading to reduced handling charges.
  - Feeding smaller ports in a hub-and-spoke model, where the mega port manages global maritime traffic and distributes cargo to smaller ports.
- It has a potential to handle projected sea-based EXIM trade of US$ 1.6-2 trillion by 2030.
- It can reduce dependence on foreign ports for transshipment.

Strategic

- It will act as crucial node for IMEEC (India-Middle East-Europe Economic Corridor) and INSTC.

10. Digital *Bharat Nidhi*

News: Department of Telecommunications (DoT) has released draft rules for the Digital *Bharat Nidhi* (DBN). DBN intends to increase telecom connectivity in rural areas. It will replace the USOF.

About Digital *Bharat Nidhi*

- Digital *Bharat Nidhi* (DBN) aims to:
  - **Improve internet connectivity**, particularly in **rural**, **remote**, and **economically disadvantaged areas**.
  - **Foster technological innovation**, create **regulatory sandboxes**, and enhance the global presence of India's telecom sector.
  - **Promote indigenous technology development**, and standardisation.
  - **Support startups** in the telecom sector and the manufacturing of telecom equipment.
- It will replace the **Universal Service Obligation Fund** (USOF) to ensure better allocation of resources.
- DBN will focus on research, development, and overall connectivity improvement. It encourages telecom services for **underserved groups**, including women and people with disabilities.
- Telecom companies' contributions to the Digital *Bharat Nidhi* will first be **credited to the Consolidated Fund of India** (CFI) and then later deposited into the DBN.
- **Management and Implementation**: An administrator will manage the fund, and projects will be executed by implementers selected through bidding or direct applications, ensuring transparency. The administrator will tailor payment methods (full, partial, co-funding) based on specific connectivity needs.

About Universal Service Obligation Fund (USOF)

- It was established in 2003 to enhance telecom services in less financially viable regions.
- It was funded by a 5% levy on telecom operators' Adjusted Gross Revenue (AGR). However, only about 72% of the INR 41,740 crore received between 2017 and 2022 was utilized.

11. Annual Survey of Unincorporated Sector Enterprises

News: The Ministry of Statistic and Programme Implementation (MoSPI) has released the Annual Survey of Unincorporated Sector Enterprises (ASUSE) for 2022-23.

Key Findings of the Survey

- The ASUSE is conducted by the National Statistical Office (NSO). It provides data on the unorganized sector.
- It used to be conducted every 5 years but is **now an annual survey**. The recent surveys are for 2021-22 and 2022-23.

- **Total Enterprises**: The number of informal enterprises increased slightly from 63.4 million in 2015-16 to 65 million in 2022-23.
- **Composition of Enterprises**: ~85% of these enterprises are **own-account enterprises** (OAEs), indicating a majority are operated by the owners without additional employees.
- **Employment Trends**: There was a **decline in the number of workers** in the unorganized sector, dropping from 111.3 million in 2015-16 to 110 million in 2022-23.
- **Economic Contribution**: The Gross Value Added (GVA) by the sector declined at 0.5% annually between 2015-16 and 2022-23, indicating a **reduction in economic productivity**.
- **Income Levels**: GVA per enterprise was INR 238,168 in 2022-23, with OAEs generating just INR 127,073 per unit, highlighting **low-income generation in this sector**. GVA per enterprise and GVA per worker both saw declines in this period.

Challenges faced by India's Informal Sector

- **Economic Shocks**: The informal sector was heavily impacted by demonetization and the GST rollout, which disproportionately affected smaller, unorganized businesses compared to the formal sector.
- **Impact of COVID-19**: The pandemic disproportionately impacted the sector due to its limited ability to wither supply and demand shocks.
- **Limited Use of Technology**: Only 6% of enterprises reported using computers in 2022-23, marginally up from 5% in 2015-16, showing **slow technological adoption**.
- **Access to Capital**: The sector struggles with getting credit, staying largely outside the scope of Government financial assistance programs.

International Relations

1. World Refugee Day

News: The World Refugee Day is celebrated every year on June 20.

About World Refugee Day

- World Refugee Day is celebrated on June 20. Theme for 2024 is 'For a World Where Refugees Are Welcomed'.
- It was first celebrated on June 20, 2001 to commemorate the 50th anniversary of the 1951 Convention relating to the Status of Refugees. The UN General Assembly officially declared it as an International Day for Refugees.
- **Significance**
  - It draws attention to the **hardships and challenges faced by refugees** globally, advocating for solutions to these issues. *(Refer EPIC March 2022 for The Need for an Asylum Law in India)*.
  - The day is dedicated to acknowledging and celebrating the resilience, courage, and strength of refugees as they strive to rebuild their lives and work towards a brighter future.

About 1951 Refugee Convention

- The 1951 Refugee Convention provides a **globally recognized definition of a refugee** and outlines the **legal protections**, **rights**, and **assistance** refugees are entitled to.
- The **United Nations High Commissioner for Refugees** (UNHCR) acts as the guardian of the Convention and its protocols, ensuring their implementation and protection of refugees' rights.
- **Core Principles**
  - **Non-Refoulement**: Refugees must not be returned to a country where they face serious threats to their life or freedom.

  - **Basic Rights**: Refugees have the right to housing, work, and education while displaced; to help them live a dignified and independent life.
  - **Obligations:** Refugees must **follow the laws of their host countries**. Certain individuals, like **war criminals**, are **excluded from refugee status**.
- **Legal Obligations of States**
  - **Accession to the Convention**: A State can join the 1951 Convention by depositing an instrument of accession with the UN Secretary-General, signed by the Foreign Minister or the Head of State.
  - **1967 Protocol**: States wishing to join the 1967 Protocol follow the same procedure. They can join both the Convention and the Protocol simultaneously, which most States choose to do.

2. Mutual Evaluation of India Report by FATF

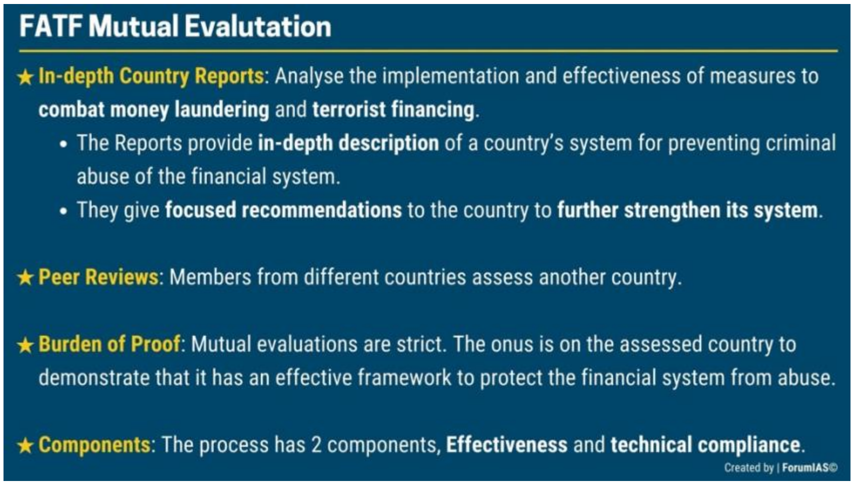
News: India has achieved an 'outstanding outcome' in the mutual evaluation conducted by the FATF.

About Mutual Evaluation Report of India

- The Report was adopted at the FATF plenary held in June 2024 in Singapore.
- India is now in the '**regular follow-up**' category. It is a prestigious group that includes **only 4 other G20 countries**.

Key Highlights of the report

- According to the Report, India has achieved '**high level of technical compliance**', against the requirements put forward by FATF for fighting money laundering.



FATF Mutual Evalutation

★ **In-depth Country Reports**: Analyse the implementation and effectiveness of measures to **combat money laundering** and **terrorist financing**.
- The Reports provide **in-depth description** of a country's system for preventing criminal abuse of the financial system.
- They give **focused recommendations** to the country to **further strengthen its system**.

★ **Peer Reviews**: Members from different countries assess another country.

★ **Burden of Proof**: Mutual evaluations are strict. The onus is on the assessed country to demonstrate that it has an effective framework to protect the financial system from abuse.

★ **Components**: The process has 2 components, **Effectiveness** and **technical compliance**.

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- **Reducing Money Laundering (ML)/Terrorist Financing (TF) Risks:** India has effectively tackled the dangers of money laundering and terrorist financing, including crimes related to corruption, fraud, and organized crime.
- **Moving to a Digital Economy**: India has made a big shift from cash to digital transactions. This change helps reduce the risks of ML/TF.
- **Increased Financial Inclusion**: The use of the JAM (Jan Dhan, Aadhaar, Mobile) Trinity and strict rules on cash transactions have **increased financial inclusion** (more people using banking services). This has made it **easier to track transactions**. Consequently, the ML and TF risks have decreased.

Benefits for India's Economy

- It shows that **India's financial system is stable and trustworthy**, which helps **attract investors** and improves access to global financial markets.
- This also supports the expansion of the UPI which is India's fast payment system worldwide.

Suggestions for Improvements by FATF

- **Counter Delays**: India needs to address delays related to concluding ML/TF prosecutions and ensure counter terrorist financing measures are implemented.

- **Better Supervision in Non-Financial Sectors**: India needs to improve how it monitors and enforces anti-ML and TF rules in non-financial sectors, like real estate and precious metals.
- **Protecting Non-Profit Organizations**: India needs to make sure that measures to protect Non-profit Organizations (NPOs) from being used for Terror Funding are effective. This involves educating NPOs about the risks and how to avoid being exploited for Terror Funding.

3. Resolve Tibet Act of the US

News: The US Congress has passed the Promoting a Resolution to Tibet-China Dispute Act.

About the Resolve Tibet Act

- It is the 3rd notable Act related to Tibet passed by the US following the **Tibetan Policy Act** (TPA, 2002), and the **Tibetan Policy & Support Act** (TPSA, 2020).
- It aims for peaceful settlement of the Tibet-China dispute.

Key Provisions of the Resolve Tibet Act (RTA)

- The Act authorises the use of funds to **counter Chinese disinformation** about Tibet "including the disinformation about the history of Tibet, its people and institutions, including that of the Dalai Lama".
- The Act challenges the Chinese contention that Tibet has been a part of China since ancient times.
- It urges China to **engage in meaningful and direct dialogue with the Dalai Lama** or his representatives, "without preconditions, to seek a settlement that resolves differences".
- It underlies the **right of the Tibetan people to self-determination** noting China's duty to two international covenants: The **International Covenant on Civil and Political Rights** and the **International Covenant on Economic, Social and Cultural Rights**.

Differences with Earlier Acts

- The new Act amends the TPA (2002) to **define the exact geographical areas part of the Tibetan Autonomous Region**.
- The TPA 2002 recognised China's claim that Tibet was an integral part of China. **RTA 2024 challenges this claim**.
- The TPA and TPSA pushed for '**constructive dialogue**' between China and Dalai Lama. In contrast, the RTA calls for '**dialogue without pre-conditions**'.

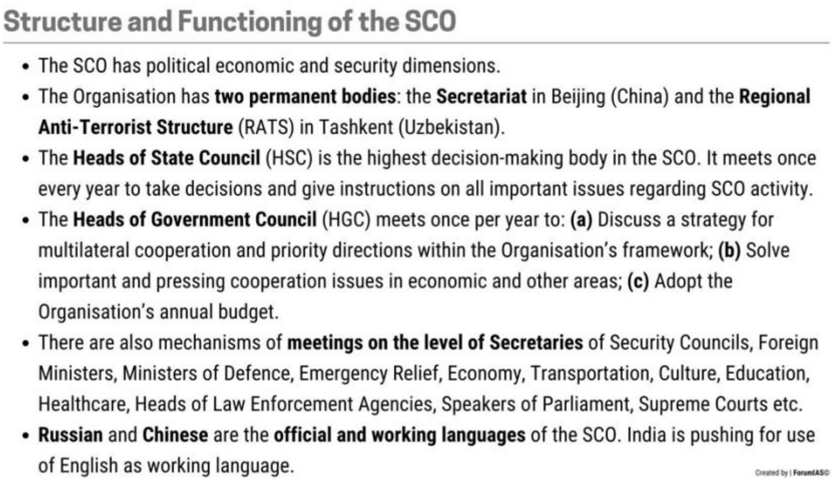
4. SCO Summit

News: The 24th Summit of the SCO was held in Astana, Kazakhstan.

Key Highlights of the SCO Summit

- **Astana Declaration**: The Astana Declaration was adopted and it approved 25 strategic agreements on energy, trade, finance, and security.
- Resolutions were passed on **energy cooperation**, **economic development**, **combating terrorism**, **separatism**, and **extremism** among others.
- India's External Affairs Minister urged the global community to **isolate countries that harbour terrorists**, **condone terrorism**.
  - He emphasised the need to **counter cross-border terrorism** and highlighted the importance of combating terrorism as a foundational goal of the SCO.
  - India has been proactive in enhancing its security-related cooperation within the SCO framework, particularly through the **Regional Anti-Terrorism Structure (RATS),** which focuses on security and defence issues.

- President of Russia emphasized the SCO's role in promoting a **fair, multipolar world order**.
- The **SCO Development Strategy until 2035** was also adopted.
- **New Membership**: **Belarus** became the 10th member state of the SCO.
- **India-China Meeting**: India's External Affairs Minister met the Chinese Foreign Minister on the margins of the SCO Summit. Both Ministers emphasised the need for "**complete disengagement**" of troops and **restoring peace** along the LAC.



Structure and Functioning of the SCO

- The SCO has political economic and security dimensions.
- The Organisation has **two permanent bodies**: the **Secretariat** in Beijing (China) and the **Regional Anti-Terrorist Structure** (RATS) in Tashkent (Uzbekistan).
- The **Heads of State Council** (HSC) is the highest decision-making body in the SCO. It meets once every year to take decisions and give instructions on all important issues regarding SCO activity.
- The **Heads of Government Council** (HGC) meets once per year to: **(a)** Discuss a strategy for multilateral cooperation and priority directions within the Organisation's framework; **(b)** Solve important and pressing cooperation issues in economic and other areas; **(c)** Adopt the Organisation's annual budget.
- There are also mechanisms of **meetings on the level of Secretaries** of Security Councils, Foreign Ministers, Ministers of Defence, Emergency Relief, Economy, Transportation, Culture, Education, Healthcare, Heads of Law Enforcement Agencies, Speakers of Parliament, Supreme Courts etc.
- **Russian** and **Chinese** are the **official and working languages** of the SCO. India is pushing for use of English as working language.

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- **Global Economic Growth**: The '**Make in India**' initiative was highlighted as it has the potential to become a significant engine for global economic growth.
  - India expressed openness to partnering with other nations, particularly the Global South, for capacity building and economic development. *(Refer EPIC September 2022 for Shanghai Cooperation Organization (SCO))*.

5. European Council

News: The Prime Minister of India recently congratulated António Costa on being elected as the next President of the European Council.

About the European Council

- The European Council is the European Union's institution responsible for **defining the general political direction and priorities of the EU**.
- The European Council is headquartered in **Brussels**, **Belgium**.
- It was created in **1974 as an informal forum** for discussion among the Heads of State or Government of the EU member states.
- It acquired formal status and role under the **Treaty of Maastricht** to provide impetus and general political guidelines for the EU.
- It comprises the **Heads of State or Government** of the **27 EU member States**.
- It includes the **President of the European Council** and the **President of the European Commission**.
- The Council generally convenes 4 times a year. The President can call additional meetings to address urgent issues.
- The Council generally decides issues by consensus. Only Heads of State/Government have the right to vote.
- Its functions include:
  - It determines the **EU's overall direction** and **political priorities** but **does not pass laws**.
  - It addresses complex or sensitive issues that cannot be resolved at lower levels of intergovernmental cooperation.
  - It nominates and **appoints candidates** to high-profile EU-level roles, such as those in the **European Central Bank** (ECB) and the **European Commission**.
  - It sets the **EU's common foreign and security policy**, considering EU strategic interests and defense implications.

6. Prime Minister's Visit to Austria

News: The Prime Minister of India visited Austria. It was the first visit by an Indian PM to Austria in 45 years.

Key Highlights of PM's Visit

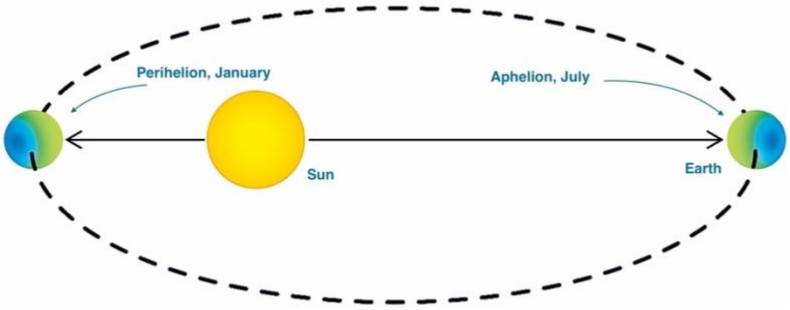
- **Economic and Technological Cooperation**: Leaders of both countries identified stronger economic and technological ties as a strategic goal between India and Austria. They welcomed the 1st high-level bilateral Business Forum and discussed opportunities for collaboration in areas like green and digital technologies, renewable energy, water management etc.
- **India-Austria Startup Bridge**: India-Austria Startup Bridge was launched to foster innovation and entrepreneurship between countries.
- **Alignment on Geopolitics**: Both countries affirmed their commitment to a free and open Indo-Pacific region and peaceful resolution of Ukraine conflict.
- **Cooperation on Climate Action and Sustainability**: Both countries pledged to collaborate on renewable energy, with a specific focus on Austria's Hydrogen Strategy and India's Green Hydrogen Mission. They expressed support for climate neutrality/Net Zero goals of EU (2050), Austria (2040) and India (2070).
- **Strengthening Cultural Ties**: The leaders appreciated the rich tradition of cultural exchanges and the growing interest in Yoga and Ayurveda in Austria. They encouraged efforts to promote bilateral cultural ties and tourism.
- **Global Governance**: The leaders reiterated their commitment to achieving **comprehensive reforms of the UN**, including the **Security Council**. India reiterated its support for Austria's UNSC candidature for 2027-28, while Austria expressed support for India's candidature in 2028-29. India invited Austria to join the **International Solar Alliance**. *(Read more about India-Austria Relationship)*.

Science and Technology

1. Aphelion (Earth's Orbit)

News: The Earth reaches the Aphelion in July every year. This year it reached Aphelion on July 05.

About Aphelion



- The Earth's path around the Sun is **not circular** but is in **elliptical** or **oval** shape. Because of the oval shape, sometimes Earth is closer to the Sun, and sometimes it's farther away.
- The point where **Earth is farthest from the Sun** is called **Aphelion**.
- At aphelion, Earth is **~152.1 million kilometers away from the Sun**.
- This happens every year in early July. 6 months later, **in early January**, Earth reaches the **closest point to the Sun**, called **Perihelion**, when it is **~147.1 million kilometers away**.
- The distance changes by about 5 million kilometers between these two points.

Impact on Seasons

- The tilt of the Earth's axis is the main reason of having seasons. Depending on where Earth is in its orbit, either the Northern or Southern Hemisphere tilts towards or away from the Sun, creating the seasons.
- Earth gets about **7% less sunlight at aphelion** compared to perihelion.

- If Earth's orbit were a **perfect circle**, the **lengths of the seasons would be the same**.
- Spring and summer are bit longer than fall and winter in the Northern Hemisphere because of elliptical orbit.
- If the orbit became more circular, it wouldn't cause major changes. However, **if the orbit became more stretched out (more elliptical), it could make the seasons much more extreme**.
  - Summers could become very hot, and winters very cold which could be harmful to life on Earth.

2. Miniature Satellites

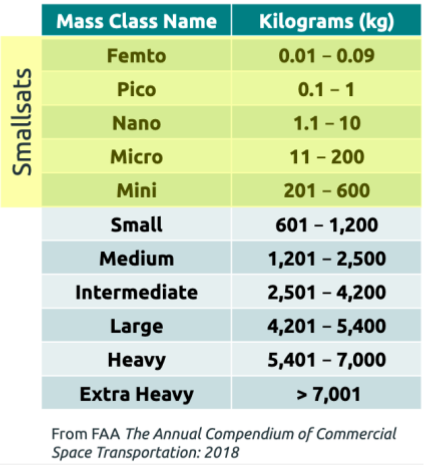
News: The Ministry of Defense has signed a contract with SpacePixxel Technologies for designing and developing a miniaturized satellite. It is the 350th contract under iDEX.

About Miniaturised Satellites

- A miniaturized satellite is **smaller and lighter** in weight than a traditional satellite.
- These types of satellites are typically used for **research or commercial purposes** and are often launched into orbit as part of a larger mission.
- **Capabilities**: The designed satellite will be capable of carrying **electro-optical**, **infrared**, **synthetic aperture radar**, and **hyper-spectral payloads**. It can carry payloads weighing up to 150 kg.
- The miniaturised satellite represents innovation in space electronics. It allows for the miniaturisation of payloads that were previously deployed on larger satellites.
- The small satellite has a **modular design** to **integrate multiple miniaturised payloads** as required.
- The benefits include **faster and economical deployment**, ease of manufacturing, scalability, adaptability, and reduced environmental impact.

About Innovations for Defence Excellence (iDEX) Initiative

- It was launched by Government of India in 2018.
- It is funded and managed by the **Defence Innovation Organization** (DIO) under the **Department of Defence Production**.
- It aims at **creation of an ecosystem to foster innovation** and **technology development** in Defence and Aerospace by engaging Industries including MSMEs, start-ups among others. *(Refer EPIC May 2023 for India's Space Policy, 2023 and EPIC August 2022 for Space Economy in India)*.



	Mass Class Name	Kilograms (kg)
Smallsats	Femto	0.01 – 0.09
	Pico	0.1 – 1
	Nano	1.1 – 10
	Micro	11 – 200
	Mini	201 – 600
	Small	601 – 1,200
	Medium	1,201 – 2,500
	Intermediate	2,501 – 4,200
	Large	4,201 – 5,400
	Heavy	5,401 – 7,000
	Extra Heavy	> 7,001

From FAA *The Annual Compendium of Commercial Space Transportation: 2018*

Source: Brycetech. Classification of Satellites according to mass.

3. Global IndiaAI Summit 2024

News: The Global IndiaAI Summit was held in New Delhi.

About Global IndiaAI Summit 2024

- The event was hosted by the **Ministry of Electronics and Information Technology**.
- Its key objectives included:
  - **Foster Collaboration**: Bringing together global AI experts from various fields including science, industry, civil society, governments, international organizations, and academia.
  - **Knowledge Exchange**: Sharing insights on key AI issues and challenges.
  - **Promote Ethical AI**: Emphasizing responsible AI development and deployment.
- India hosted member countries and experts from the **Global Partnership on Artificial Intelligence** (GPAI) to promote safe, secure, and trustworthy AI

Key Outcomes

- The Government emphasised its commitment to **make AI accessible to all**, regardless of socio-economic status. The summit provided platform for countries of the **Global South** to express their AI-related concerns and aspirations, with many acknowledging **India's role in bridging the gap with the Global North**.
- The summit demonstrated India's commitment to building a robust and **inclusive AI ecosystem through the INDIAai Mission**.
- The convening of Collaborative AI on Global Partnership (CAIGP) brought together GPAI members, AI experts and industry representatives to **identify mechanisms to overcome the global AI divide**.
    - GPAI is a multi-stakeholder initiative with 29 member countries including India, which aims to **bridge the gap between theory and practice on AI** by supporting cutting-edge research and applied activities on AI-related priorities.
- Plans were discussed to provide subsidised access to **GPU infrastructure for startups,** addressing the critical need for compute power in AI development. The summit highlighted strategies to resolve key issues faced by AI startups, including access to datasets, skill development, and fostering innovation.
- The summit also reaffirmed the collective commitment to **fostering trustworthy and human-centric AI development**.

4. Use of Drones to Provide 5G Connectivity

News: The DoT plans to conduct trials soon to test the effectiveness of using drones and tethered balloons for 5G connectivity. The DoT aims to finalize its decision by June of next year.

About the Use of Drones for 5G Connectivity

- The Department of Telecommunications (DoT) is considering using drones and tethered balloons for **restoring 5G connectivity during emergencies** and **natural calamities** when normal telecom services get severely disrupted.
- This method is considered **more convenient and quicker** compared to **setting up new mobile towers**. Setting up mobile towers take a lot more time and is more expensive.
- Quick restoration of connectivity through drones and balloons can **aid disaster rescue and relief works**.
- Industry experts have suggested that telecom companies can utilize their existing spectrum to provide connectivity through these aerial platforms.
    - Additionally, **power supply requirements** for drones and balloons can be met using backup or **solar technologies**, making them sustainable options for emergency communications.
- However, some experts are of the opinion that implementing drones and balloons for 5G connectivity **raises privacy and regulatory concerns**.
    - Drones are often associated with surveillance, and their use in public areas must be carefully regulated to prevent potential **privacy violations**.
    - The definition of “emergency” and the duration for which these platforms will be used post-emergency need to be clearly outlined.

About DoT’s Disaster Management Unit

- The DoT disaster management unit is responsible for guaranteeing telecom connectivity during and after disasters.
- It ensures **network connectivity**, **provides early warnings**, and implements **automated priority call routing** during emergencies.
- The DoT coordinates with telecom operators to restore connectivity swiftly, including setting up temporary networks or repairing damaged infrastructure.

5. Snowblind Malware

News: A new malware Snowblind is targeting Android users to steal banking credentials.

About Snowblind Malware

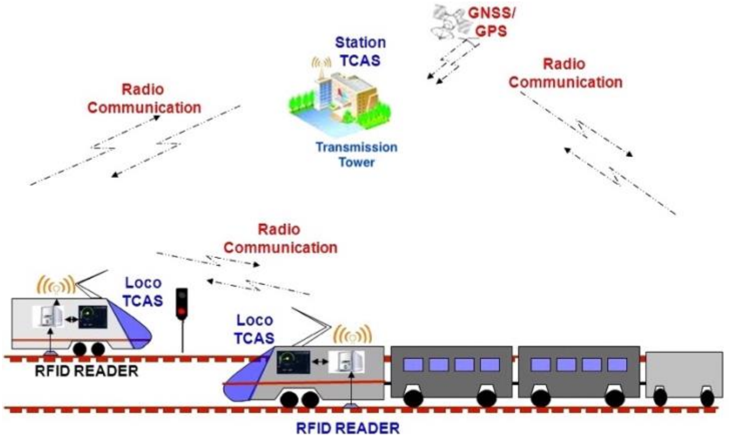
- It is an Android banking malware designed to **steal banking credentials** by **bypassing security features**.
- It uses a built-in Android security feature to bypass **anti-tamper mechanisms**.
- The malware **repackages apps to avoid detection of accessibility features** that can extract sensitive information like **login credentials** and **gain remote access** to the app.
  - o Snowblind exploits a feature called '**seccomp**', which stands for 'secure computing' and is part of the **Linux kernel** and **Android OS**.
  - o It injects code that loads before seccomp initializes anti-tampering measures, allowing the malware to bypass security mechanisms and utilize accessibility services.
- Snowblind can **remotely view the victim's screen** by using accessibility services.
- It can **disable biometric** and **two-factor authentication**, which are commonly used **security features in banking apps** to prevent unauthorized access.
- Snowblind typically infects users who **install apps from untrusted sources**.
- The malware is mostly active in Southeast Asia, although the exact number of affected devices is unknown.
- Users are advised to **avoid installing apps from untrusted sources** and to remain vigilant about the app permissions and behaviours.

6. Issues in Implementation of Kavach System

News: A collision between a goods train and Kanchanjunga Express led to death of 10 persons. This has highlighted the need to implement the Kavach system in all trains.

About Kavach System

- It is India's **Automatic Train Protection** (ATP) system designed to **enhance the safety of railways**.
- Kavach is a **Traffic Collision Avoidance System**. It has been designed to bring a train to a halt automatically when it notices another train on the same line within a prescribed distance.



Cost of Implementing Kavach

Equipment Requirement

- **RFID Tags**: Radio Frequency Identification (RFID) tags are placed on the tracks.
- **Engine Setup**: Engines are equipped with RFID readers, a computer, and brake interface equipment.
- **Radio Towers**: Radio towers are installed at railway stations.

Cost of Implementing Kavach

- **Tracks**: INR 50 lakh per kilometre. Total cost for 68,000 km of tracks will be INR 34,000 crore.
- **Engines**: INR 70 lakh per engine. Total cost for 15,200 engines will be INR 10,640 crore.
- **Total Cost**: INR 45,000 crore for complete implementation.
- **Yearly Cost**: Spread over 10 years, the yearly cost will be INR 4,500 crore.
- **Budget Proportion**: The yearly cost is less than 2% of the Railway's annual capital expenditure of INR 252,000 crore in FY2024-25. *(Refer EPIC June 2023 for The Issue of Railways Safety in India and Kavach)*.

Slow Pace of Implementation

- **Slow Progress**: Since field trials in 2016, Kavach has been installed on just 1,465 route kilometers as of February 2024, which is only around 2% of the total railway network.
- **Low Coverage of Locomotives:** Of the total 15,200 diesel and electric engines in the Indian Railways, only 139 are equipped with Kavach, accounting for less than 1% of engines.
- **Slow Deployment Rate**: At the current rate of deployment, it will take ~46 years to cover all routes and over 100 years to equip all engines with Kavach.
- **Need for Increased Pace**: To complete installation within 10 years, the deployment rate must increase to 6,800 route kilometers per year and 1,500 engines per year.

7. Junk DNA

News: Researchers have used AI to discover potential cancer drivers hidden within the so-called 'junk' regions of DNA.

About Junk DNA

- In genetics, junk DNA refers to **regions of DNA that are non-coding**.
- DNA contains instructions (coding) for creating proteins in cells, but **not all genetic sequences within a DNA molecule code for proteins**.
  - Non-coding DNA are sequences that do not code for proteins.
- **Types of Noncoding DNA**: Some non-coding DNA is used to **produce non-coding RNA components**, such as **Transfer RNA** (tRNA), **Regulatory RNA** and **Ribosomal RNA** (rRNA).
- Other regions of non-coding DNA are not transcribed into proteins or used to produce RNA molecules, and **their function is unknown**. These are referred to as junk regions of DNA.
- **Proportion of Coding vs. Non-coding DNA**: The proportion of coding versus noncoding DNA varies significantly between species:
  - In Humans, **~98% of the DNA is non-coding**.
  - Some bacteria have only ~2% of the non-coding genetic material.
- **Functional Activity in Junk DNA**
  - Despite being labelled as junk, researchers have found evidence suggesting that **junk DNA may have some functional activity**. For instance, fragments of what were originally non-functional DNA might have acquired a function through a process called **exaptation**.
  - Exaptation refers to the **acquisition of a function through means other than natural selection**, indicating that these non-coding regions might have roles that are not yet fully understood.

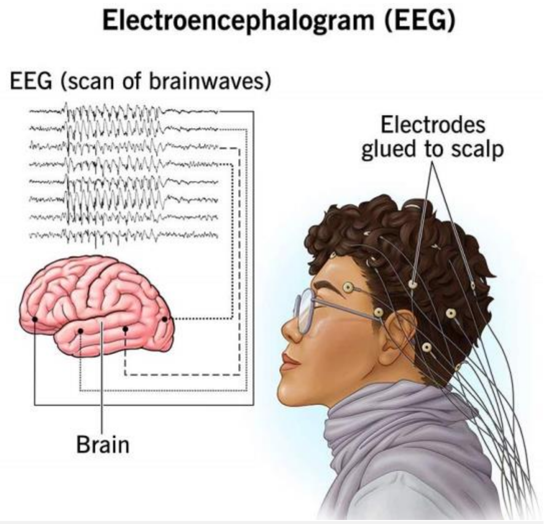
8. Electroencephalogram/Electroencephalography (EEG)

News: The first human electroencephalogram was conducted in 1924. The technology has completed 100 years.

About EEG

- EEG also refers to Electroencephalograph. 'Electro' pertains to electricity, 'encephalo' is related to the brain, and 'graphy' means representation.
- It is commonly used to **diagnose epilepsy** and **monitor effects of anaesthesia** , **sleep patterns**, coma activity, and **brain death**.
- **Working of EEG**: Neurons in the brain move electrically charged particles, **creating electrical activity**.
  - Electrodes of an electrogram are placed on the scalp and help record the electrical activity in the brain.

  - EEG tests **visualize this activity** and help distinguish between **normal and abnormal brain states**.
- **Advantages of EEG**: EEG setups are **simple and cost-effective**.
  - The equipment is small, **doesn't emit radiation or noise**, and is **non-invasive and portable**.
- **Disadvantages**: Setting up an EEG test takes time, as this process includes applying gel and placing electrodes. Thicker hair can affect EEG readings.
  - EEG is good at tracking rapid electrical activity in the brain but is **biased towards signals near the brain's surface**. It may not accurately pinpoint the origin of electrical activity within the brain.
- To overcome limitations, EEG is often **used with tests like MRI** and advanced data processing methods.



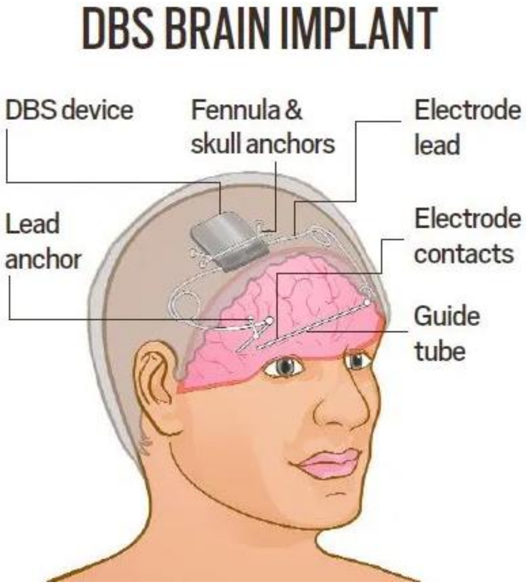
Source: Cleveland Clinic. Pictorial representation of the EEG.

9. Brain Implant to Control Epileptic Seizures

News: A UK-based teenager became the first person to receive a brain implant designed to control epileptic seizures.

Working of the Brain Implant

- A neurostimulator is used which is an **implantable device** that delivers **mild electrical pulses to nerves**.
- This neurostimulator delivers constant electrical impulses to the brain to **disrupt or block abnormal seizure-causing signals**. It is **surgically implanted** in the skull.
- Two electrodes are inserted deep into the brain to reach the **thalamus**, connected to the neurostimulator.
  - The device can be recharged wirelessly.



About Deep Brain Stimulation (DBS)

- DBS involves implanting electrodes within areas of the brain.
- DBS is used for **movement disorders** like **Parkinson's disease** and other neurological conditions.
- It has been used for nearly a decade in treating epilepsy. Traditionally such devices were placed in the chest with wires running to the brain.

Treatment for Epilepsy

- **First Line of Treatment**: Doctors initially use **anti-seizure medications** and a ketogenic diet, which is high in fats and low in carbohydrates, known to reduce seizures.
- **Surgical Options**: If medications and diet do not work, **brain surgery** may be performed to remove the **seizure-originating part** of the brain.
- **Corpus Callosotomy**: It is a surgery to remove the part connecting both brain halves. This may be suggested for children to prevent abnormal electrical signals from spreading.

Comparison of Surgery vs. DBS Device

- Surgery is preferred over DBS devices as it can reduce seizures by nearly 90%, compared to about 40% reduction by DBS devices.
- DBS is recommended for patients with seizures originating from multiple brain parts or when other treatments fail.

About Epilepsy

- Epilepsy is a condition that leads to recurring seizures. It is caused by abnormal electrical activity in the brain.
- It include jerking of arms and legs, temporary confusion, staring spells, or stiff muscles.
- Approximately 50% of epilepsy cases **have no identifiable cause**. Possible causes include head trauma, brain tumours, infections like meningitis, and genetic factors. Epilepsy can increase the risk of accidents, falls and drownings. *(Refer EPIC February 2024 for Brain-Computer Interface (BCI)).*

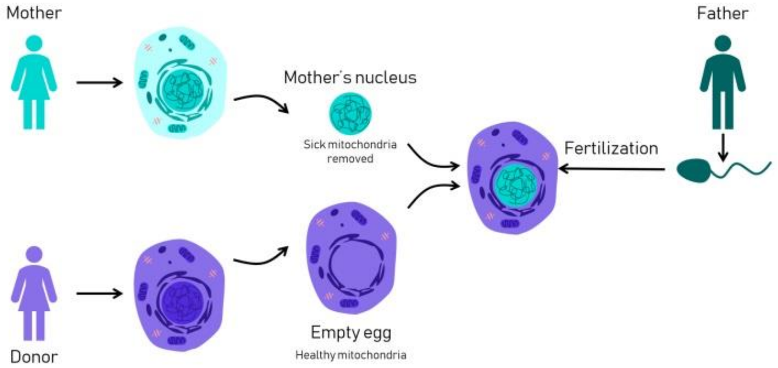
10. Mitochondrial Diseases and Mitochondrial Donation

News: Scientists are preparing for a clinical trial to determine the safety and effectiveness of mitochondrial donation.

About Mitochondrial Diseases

- Mitochondrial diseases (Mito) refers to a group of diseases that **impair the mitochondria's ability to produce the energy needed for organs to function properly**.
- Mito can appear in many forms, affecting one or more organs and potentially **leading to organ failure**.
- **Inheritance**: Mitochondrial disease can be caused by **faulty genes** in **nuclear DNA** (inherited from both parents) or **mitochondrial DNA** (inherited only from the mother).
  - The severity of Mito can vary, even within the same family, where a mildly affected mother might give birth to a severely affected child.
  - Mito is the most common inherited metabolic condition, affecting 1 in every 5,000 people.

About Mitochondrial Donation



- Mitochondrial donation is an **IVF-based method** that allows people with **faulty mitochondrial DNA** to have children **without passing on the faulty DNA**.

Procedure

- The nuclear DNA from intending parents is inserted into an egg from a donor with healthy mitochondria.
- The resulting egg contains **nuclear DNA from the parents** and **healthy mitochondrial DNA from the donor**.
- Sperm is then added to fertilize the egg, allowing the child to inherit nuclear DNA from both parents and mitochondrial DNA from the donor.
- The procedure requires highly trained scientists and specialized equipment. Both the egg donor and the person with Mito receive hormone injections to stimulate the ovaries to produce multiple eggs.
  - Eggs are retrieved through an **ultrasound-guided surgical procedure**.
- **Benefits:** This significantly reduces or eliminates the risk of the child inheriting mitochondrial disease.

11. Polio Vaccine

News: Poliovirus is now restricted to rural pockets of Afghanistan and Pakistan. The WHO's Global Polio Eradication Initiative is expected to miss its 2024 deadline for eradication.

Key Developments in Polio Vaccine

- **Discovery of Poliovirus Growth in Non-Nerve Cells**: In 1948, microbiologists John F. Enders, Thomas Weller, and Frederick Robbins found a way to **grow poliovirus in non-nerve cells**, which was a breakthrough that **enabled mass production** for vaccine research.
- **Salk's Inactivated Polio Vaccine (IPV)**: Jonas Salk developed the first successful polio vaccine by **inactivating the virus with formaldehyde**. This vaccine **induced systemic immunity** by being injected into muscles.
- **Sabin's Oral Polio Vaccine (OPV)**: Albert Sabin created a **live**, **weakened vaccine administered orally**. It induced **strong mucosal immunity** and directly target the virus's entry point in the gut.
- **Global Impact and Strategy**
  - Countries used a **combination of IPV and OPV to combat polio**.
  - OPV's ease and superior protection were pivotal in high-incidence areas, while IPV was used when polio cases dropped to zero due to its enhanced safety.
  - Both vaccines were not patented, allowing widespread use.
- Despite these efforts, **eradication remains elusive** due to challenges like **misinformation** and **limited access in conflict zones**.
- Continued **global cooperation** and **vaccination campaigns** are crucial to achieving complete eradication.

Comparison

IPV (Inactivated Polio Vaccine)	OPV (Oral Polio Vaccine)
• Safer as it contains inactivated virus particles. • Induces systemic immunity, protecting blood and organ systems. • Requires syringes and trained personnel for administration.	• Easier to administer, needing no syringes or trained personnel. • Induces mucosal immunity, offering greater protection at the viral entry site. • Rarely, the weakened virus can revert and cause polio.

12. Theories of Evolution of Life on Earth and the Last Universal Common Ancestor (LUCA)

News: A recent study has suggested that the Last Universal Common Ancestor possibly originated ~300 million years after the Earth came into existence.

About the Theories on the Origin of Life

- There are a number of competing theories about the Origin of Life on Earth, but they lack conclusive proof.
- In 1920s, Alexander Oparin and JBS Haldane proposed the first theories about the origin of life, suggesting that molecules in a '**primordial soup**' **self-organized into early life forms**. This idea is known as the Oparin-Haldane hypothesis.
- The **Miller-Urey Experiment** (1952) demonstrated that under certain conditions, **inorganic compounds could form amino acids**. Amino acids are **building blocks of proteins** and are considered **fundamental for organic life**.
  - Miller and Urey mixed methane, ammonia, and water, and applied an electric current, simulating lightning, which resulted in the creation of amino acids.
  - While the experiment's environmental assumptions may not fully align with early Earth conditions, it proved that amino acids could arise from inorganic molecules.

- Some researchers propose that **meteorites brought the building blocks of life to Earth**. Discoveries of extraterrestrial organic material and amino acids on asteroids support this hypothesis.

About LUCA and the Theory of the Molecular Clock

- Another unresolved question is how the life-forms evolved to produce the rich biodiversity existent today.
- Researchers believe all **three domains of life** (***bacteria***, ***archaea*** *(both without nucleus in the cell) and* ***eukarya*** *(with nucleus in cells)*) originated from a **single cell**, called the **Last Universal Common Ancestor** (LUCA).
- There is **no fossil evidence** to support the **existence of LUCA**, but the fact that modern genomes share so many features provides some insights.
- An important concept that allows scientists to reconstruct the 'tree of life' is the **Theory of the Molecular Clock**. It was proposed by Zuckerkandl and Pauling in the 1960s.
  - According to the theory, the **rate at which mutations are added or removed** from a population's genome is **proportional to the rate of acquiring new mutations**, which is constant. Later studies also found that the mutation rate varies between species. Genetic mutations are essential to evolution.
  - Using these two facts, researchers have developed a way to estimate **how much time could have passed between two evolutionary events**. Researchers use the molecular clock to understand the **evolution of various life-forms on earth through time**.
- Researchers from University of Bristol and University of Exter constructed a **phylogenetic tree of 350 bacterial and 350 archaeal genomes**. Then, using a molecular clock, the team estimated when LUCA could have originated ~4.2billion years ago, just 300 million years after the Earth was formed.
- The researchers suggested that the **LUCA may have had a small genome**, of ~**2.5 million bases** and encoding ~2,600 proteins. It may have helped it survive in a unique environmental niche. The metabolites (compounds produced as a result of its metabolism) produced by LUCA could have created a 'secondary' ecosystem in **which other microbes could have emerged**.

Implications and Significance

- These findings significantly advance the understanding of how life emerged and evolved on Earth.
- The study also enhances the ability to search for similar forms of life across the universe.
- Insights from this research may contribute to engineering synthetic organisms for industrial, chemical, and biological processes, and creating ecosystems on other planets.

Environment

1. Rising Frequency of Wildfires in the Arctic

News: The rising frequency of wildfires in the Arctic has become a global concern.

About Rising Wildfires in the Arctic

- Wildfires are a natural part of the Arctic's **boreal forest and tundra ecosystems**.
- However, in recent years, there has been an **increase in the frequency and scale of these fires**, particularly in regions like Sakha, Russia, which experienced over **160 wildfires** charring nearly 460,000 hectares of land.
- June 2024 saw the 3rd-highest carbon emissions from Arctic wildfires in the past two decades, following June 2020 and 2019.

Reasons for Worsening Wildfires

- The **Arctic is warming ~4 times faster than the global average**. Since 1980, the Arctic has become about **3°C warmer**.

- Increased warming leads to **more frequent lightning strikes**, which have more than doubled in Alaska (US) and the Northwest Territories (Canada) since 1975.
- A **slowed polar jet stream** due to **reduced temperature differences between the Arctic and lower latitudes** results in prolonged warm weather and intense heatwaves, further increasing wildfire risk.
- Rising temperatures, more frequent lightning, and heatwaves are expected to worsen, leading to more frequent wildfires.
  - By 2050, wildfires in the Arctic could increase by one-third (~33%). (Estimated by the World Wild Fund).

Impact on Global Warming

- **Greenhouse Gas Emissions**: Wildfires release significant amounts of greenhouse gases (GHGs) such as carbon dioxide (CO_2) into the atmosphere.
- **Thawing of Permafrost**: Arctic permafrost contains around 1,700 billion metric tons of carbon, including CO_2 and methane, which is ~51 times the global fossil fuel emissions of 2019.
  - Wildfires destroy insulating layers of vegetation and soil, making **permafrost more susceptible to thawing**.
  - Thawing permafrost **releases ancient organic materials**, leading to the decomposition and **release of stored carbon into the atmosphere**.
  - A large-scale thawing of the Arctic permafrost could prevent the world from limiting global warming to the 1.5°C threshold, resulting in catastrophic and irreversible consequences.

Lack of Monitoring and Urgency for Action

- Post-fire permafrost emissions are **not currently tracked and are not included in climate models**. This lack of data makes it difficult to **estimate their full contribution to climate change**.
- Scientists emphasized that changes in the Arctic amplify global risks, highlighting the need for immediate and sustained efforts to combat this crisis.

2. Impact of Increased Concentration of CO_2 in the Atmosphere on Rainfall

News: A new study has revealed the impact of increased CO_2 in the atmosphere on rainfall and vegetation.

Key Findings of the Study

- The Study was based on **fossil pollens dating back 54 million years** (**Eocene Epoch**) collected from the Panandhro Lignite Mine of Kutch in Gujarat.
- At that time, **Indian plate was positioned near the Equator** (in its northward drift).
- The Eocene Epoch was characterized by **markedly high concentration of CO_2 in the atmosphere** and thus it was a phase of Global warming (called **Eocene Thermal Maximum** 2).
- Based on the analysis of the pollen, the scientists found that the atmospheric CO_2 concentration was more than **1000 parts per million by volume (ppmv) near the palaeo-equator**.
- The period was marked by **significant reduction in the rainfall** and an **increase in the coverage of deciduous forests**.
- Scientists say this period of intense heating can help predict how Earth's climate systems may respond to present day warming caused by rising greenhouse gas emissions.
- The possible decrease in rainfall may **impact India's biodiversity hotspots** consisting of evergreen forests (Western Ghats, Northeast India and Andaman Islands) and lead to their **conversion into deciduous forests**.

Relevance to Current Climate Change

- The study draws parallels between the past climate changes (Eocene Epoch) and potential future scenarios under **increased greenhouse gas emissions**.

- Insights from the study may contribute to **strategies for mitigating the impacts of climate change** on rainforests and other sensitive ecosystems.

3. ONGC's Plans to Achieve Net Zero by 2038

News: ONGC will invest around INR 2 lakh crore to achieve net-zero carbon emissions by 2038.

About ONGC's Plan

- By 2030, ONGC will invest INR 97,000 crore in **renewable energy projects**, including solar and offshore wind.
  - ONGC plans to establish 5 GW solar parks and wind turbines by 2030. It will add 1 GW of solar and onshore wind capacity by 2035 and 2038.
- An additional INR 65,500 crore will be invested by 2035 in **green hydrogen and green ammonia plants**. *(Refer EPIC January 2023 for National Green Hydrogen Mission and EPIC March 2022 for Green Hydrogen and Ammonia Policy)*.
  - The company plans to develop **two 180,000 tonnes per annum green hydrogen** or **1 million tonnes green ammonia projects**.
- By 2038, another INR 38,000 crore will be spent primarily on setting up **1 GW of offshore wind projects**.
- These projects will help **offset 9 million tonnes of carbon emissions**, including both direct (Scope 1) and indirect (Scope 2) emissions. *(Refer EPIC April 2024 for Scope 1, 2 and 3 Emissions)*.
- ONGC plans to invest INR 5,000 crore to **eliminate gas flaring by 2030** using advanced technology. In the base year 2021-22, ONGC released 554 million cubic metres of methane into the atmosphere.
- ONGC plans to invest INR 20,000 crore to set up **3 GW of pump storage plants** to provide electricity when energy from renewable sources is not available. *(Refer EPIC November 2023 for Pumped Storage Project)*.
- The remaining investment will be directed towards **biogas**, **carbon capture**, and clean energy initiatives.

4. The High Seas Treaty

News: The Government of India has said that India will soon sign and ratify the High Seas Treaty.

About the High Seas Treaty

- The High Seas Treaty is an **international legal framework** designed to **protect and sustainably use marine biodiversity** and other resources in **ocean waters beyond national jurisdiction**.
- These areas are known as **high seas** or **international waters** and make up ~**64% of the total ocean area**.
- This treaty aimed at maintaining the **ecological health of the oceans** by **reducing pollution** and **conserving marine biodiversity**. *(Refer EPIC April 2023 for The UN High Seas Treaty: Significance and Challenges)*.

Scope of the Treaty

- The treaty deals with **oceans outside the national jurisdiction** of any country.
  - National jurisdictions generally extend up to **200 nautical miles** (370 km) from the coastline, known as **Exclusive Economic Zones** (EEZs). High seas are the areas beyond these EEZs.
- The treaty complements the **1982 UN Convention on Laws of the Seas** (UNCLOS) which provides broad frameworks for the use and conservation of oceans but does not specify how to achieve these objectives.

Salient Features of the Treaty

- **Conservation and Protection**: It will establish **Marine Protected Areas** (MPAs) similar to national parks or wildlife reserves.
- **Fair and Equitable Sharing**: The benefits from **marine genetic resources** will be shared among all countries.
- **Environmental Impact Assessments (EIAs)**: It mandates EIAs for activities that could harm the marine ecosystems, with the results made public.
- **Capacity Building and Technology Transfer**: It aims to help developing countries benefit from marine resources while contributing to conservation efforts.

- **Ratification Process**: The treaty will come into force once 60 countries ratify it. Ratification means a country **agrees to be legally bound by the treaty**, which often requires legislative or executive approval.

India's Involvement

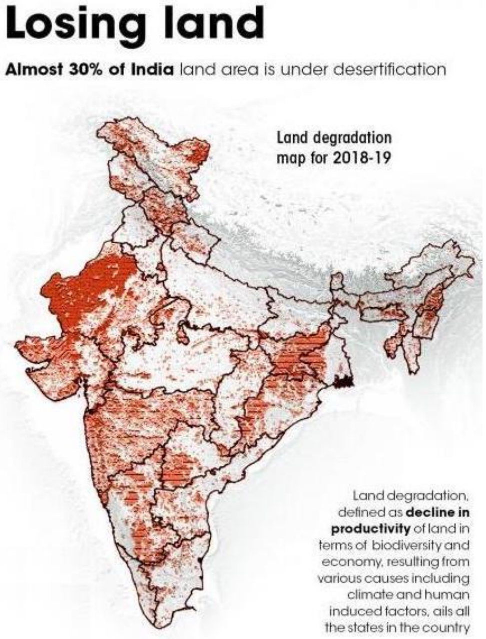
- India participated in nearly 20 years of negotiations that led to the treaty's finalization.
- India's decision to sign and ratify the treaty aligns with the actions of 91 other countries that have signed and 8 that have ratified it so far. *(Refer EPIC September 2022 for UN Treaty on High Seas)*.

5. UNESCO's Initiatives for Addressing Land Degradation

News: UNESCO has issued warning that 90% of Earth's land surface could be degraded by 2050.

UNESCO's Insights and Initiatives on Land Degradation

- According to the **World Atlas of Desertification**, **75% of soils are already degraded**. This directly affects 3.2 billion people. Based on current trend, the degradation might rise to 90% by 2050.
- UNESCO has pledged to establish '**World Soil Health Index**' in association with its international partners. The index will help to **standardise measure for analysing and comparing soil quality** in different regions and ecosystems.
- It will allow for identification of trends indicating degradation or improvement. It will also help **identify the most vulnerable areas**.
- The practice aims to improve evaluation of the effectiveness of **soil management practices**.
- UNESCO will launch a pilot programme for **long-term soil and landscape management** in 10 natural sites supported by its **Biosphere Reserves Programme**.
- The initiative will assist in assessing the management methods and ensure that the best practices are developed and implemented.
- UNESCO will **provide training** to its member government agencies, indigenous communities and conservation organisations, allowing access to **soil-protection tools**.


Losing land

Almost 30% of India land area is under desertification

Land degradation map for 2018-19

Land degradation, defined as **decline in productivity** of land in terms of biodiversity and economy, resulting from various causes including climate and human induced factors, ails all the states in the country

About Land Degradation

- IPCC has defined Land Degradation as a **negative trend in land condition**, caused by direct or indirect human-induced processes (including climate change), expressed as **long-term reduction or loss** of at least one of the following: **Biological Productivity**, **Ecological Integrity**, or **Value to Humans**.
- Land degradation is associated with desertification; deforestation; deterioration of physical, chemical and biological properties of soil; build-up of toxicities in soil (especially salts); water-logging etc. It **lowers productivity of land**.
- The major reasons for land degradation are **deforestation**, **wind and water erosion**, imprudent alteration of **land use**, excessive pressure on land beyond its **carrying capacity**, **flawed farm practices** like high use of chemical fertilisers, indiscriminate tillage etc. *(Refer EPIC April 2023 for Land Degradation: Status and Remedial Measures)*.

6. Bio-Bitumen

News: India is planning to initiate large-scale production of bio-bitumen derived from biomass or agricultural waste.

About Bio-Bitumen

- Bio-bitumen is a **sustainable alternative** to traditional fossil-fuel-based bitumen. It is **petroleum-free** and manufactured from **organic materials** such as **bio-char**, **bio-oil**, and **similar substances**. It is also known as **bio-asphalt**.
- Bio-bitumen can be used to supplement bitumen or to reduce the amount of bitumen in binder mixtures.
- It is made from **lignins** which are **natural biopolymers** found in the plant cell wall. Lignins provide structural support and aid in plant growth.
- The production process involves heating the waste mixture to ~500°C without oxygen (pyrolysis). This method is similar to the production of charcoal and biochar and is also used in biofuel manufacturing.
- Bitumen is used in **road asphalting**. Bio-bitumen is a suitable replacement for fossil-based bitumen.

Facts & Figures

What is Bitumen?

Bitumen is a black substance produced through distillation of crude oil and is widely used to bind surfaces of paved road

3.21 MT India's import of Bitumen in 2022-2023

5.24 MT India's indigenous bitumen production in the last FY

Benefits of Bio-Bitumen

- **Economic Impact**: Bio-bitumen production from biomass could lead to **substantial savings in foreign exchange** by reducing the need for imports.
  - Bitumen consumption has **risen steadily**, averaging 7.7 million tonnes annually over the past 5 years. At present, India **imports about half of its annual bitumen requirement**.
- **Environmental Impact**: This initiative provides an effective solution to the problem of stubble burning.
  - It promotes the sustainable use of agricultural waste and biomass.

7. Great Indian Bustard Conservation Plan

News: The Ministry of Environment, Forest and Climate Change (MoEFCC) has approved INR 56 crore for the next phase of the conservation of Great Indian Bustard (GIB) and Lesser Florican.

Components of the Plan

- The conservation programme has been running since 2016 for **long-term recovery of critically endangered GIB** and **Lesser Florican**. As of now, ~140 GIBs and fewer than 1,000 Lesser Floricans are surviving in the wild.
- The first component includes targets like completing the **conservation breeding centre** in Ramdevra, Jaisalmer, developing the Sorsan Lesser Florican facility, preparing for releasing captive-bred birds, releasing GIBs in Rajasthan and other areas, monitoring them after release, and **conducting artificial insemination**.
- The second component comprises **in-situ conservation of GIBs** in other range States such as **Gujarat**, **Maharashtra**, **Karnataka**, **Andhra Pradesh** and **Madhya Pradesh**. This component will be implemented by Wildlife Institute of India (WII) along with the State Governments.
- From 2024 to 2026, WII will **survey the population of GIBs** in Jaisalmer and other States where they live, and also estimate the population of the lesser florican across its entire range.
- During the 2024-2029 phase, there will be a focus on developing and implementing artificial insemination techniques as a backup to **captive-breeding conservation efforts**. The WII has partnered with the Abu Dhabi-based International Fund for Houbara Conservation for this initiative. *(Refer EPIC May 2024 for Impact of Large Solar Power Plants, EPIC April 2024 for Supreme Court's Ruling on Right Against Climate Change, and EPIC November 2022 for Great Indian Bustard).*

Threats to Species

- Both species have declined due to hunting, habitat loss, and predators preying on their eggs.

- Overhead power lines have become a significant threat to Great Indian Bustards, with a study from 2017-18 estimating that 88,000 birds of various species die annually from collisions with these lines.

8. Impact of Coal Mining on Miners and Local Residents

News: A survey of 1,200 households conducted by the National Foundation for India reveals that prolonged exposure to pollutants from coal mining has caused widespread respiratory and skin diseases among mine workers and local residents.

Key Findings of the Study

- The survey was conducted in districts Koriya and Raigarh in **Chhattisgarh**, Dhanbad and Ramgarh in **Jharkhand**, and Angul and Jajpur in **Odisha**.
- Prolonged exposure to pollutants from coal mining has led to **widespread respiratory** and **skin diseases** among **mine workers and residents** in these six districts.
- 65% of surveyed participants reported health issues like **chronic bronchitis**, **asthma**, **eczema**, **dermatitis**, and **fungal infections**.
- **Medical Expenses**
    - Monthly medical bills per household ranged from INR 300 to INR 1,000.
    - Average annual hospitalization expenses in Dhanbad were the highest at INR 28,461 per household.
- **Vulnerability**: Residents closer to coal mines are more vulnerable to health issues.
- **Economic Impact and Transition**: The study focused on the '**just transition**' from coal mining jobs.
    - Moving away from coal is expected to cause **significant job losses** and **economic downturns** in coal-dependent regions.
- **Social and economic disparities** were noted, with **varying income levels** and **irregular wage patterns**.
    - Dhanbad and Koriya rely solely on coal production, reported lower incomes compared to diversified industrial districts like Angul.

9. Impact of Air Pollution on Mortality

News: A study analyzed the health effects of short-term exposure to air pollution, specifically PM 2.5, in ten Indian cities.

Key Findings of the Study

- **Higher Death Rates in Cleaner Cities**: Spikes in air pollution in cities with cleaner air, such as Bengaluru, may lead to higher death rates compared to cities with already high pollution levels, like Delhi.
    - A similar increase in PM 2.5 levels raises death rates more in Bengaluru than in Delhi.
- **Annual Deaths Attributable to Air Pollution**: Delhi experiences the highest ~12,000 deaths/year linked to air pollution. Bengaluru has ~2,102 deaths/year, while **Shimla has the lowest number**, with 59 deaths/year.
- **Fraction of Annual Deaths Due to Air Pollution**: In Delhi, **11.5% of annual deaths are attributable to air pollution**. In Bengaluru, 4.8% of annual deaths are linked to air pollution. Bengaluru's population experiences 30% of the daily air pollution exposure compared to Delhi residents.
- **Impact of Increase in PM 2.5**: ~30,000 deaths, or 7.2% of annual deaths in the 10 cities, were due to short-term PM 2.5 exposure. The study found that total daily deaths rose by 1.42% for every 10 $\mu g/m^3$ increase in PM 2.5 exposure over a two-day period. (μg = microgram = 10^{-6} g)
- **Risk of Mortality and PM 2.5 Levels**: The study confirmed that the risk of mortality rose more quickly at lower PM 2.5 levels and plateaued as levels increased. A significant mortality risk of 2.65% was observed even on days with PM 2.5 levels below the Indian national air quality standard of 60 $\mu g/m^3$.

- **Breach of Air Quality Standards**: The WHO air quality standards (PM2.5 concentration safe limit 15 µg/m^3) was breached on 99.8% of the days analysed.
- The study was conducted in 10 cities: Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, Pune, Shimla, and Varanasi.

10. Benefits of Biomass Briquettes

News: Biomass Briquettes offer a sustainable alternative resource for generating power and electricity.

About Biomass Briquettes

- It is a **compact block** of **compressed organic matter**.
- They can be made from a variety of raw materials:
  - Rice husk, groundnut shells, sugarcane bagasse.
  - Sawdust, coffee husk, jute sticks.
  - Municipal solid waste (organic portion).
- India is a leading country for using biomass. The Ministry of Power reports that India has a plentiful and dependable biomass source, estimated at 750 million tonnes annually, mostly from agricultural leftovers.

Benefits of Biomass Briquettes

- **Environmental Benefits**: They are **carbon-neutral** and release **no additional CO_2** when burned.
  - Their adoption reduces reliance on fossil fuels, helping to mitigate greenhouse gas emissions and support climate change mitigation efforts.
- **Waste Management**: Repurposing residue contributes to waste management and carbon sequestration, enhancing their environmental impact.
- **Creation of Jobs**: In rural areas with abundant agricultural residues, setting up biomass briquette production units can create jobs and boost local economies.
- **Supply Chain Resilience**: Biomass briquettes, sourced locally, are less susceptible to external disruptions such as price fluctuations and geopolitical factors compared to fossil fuels.
- **Decentralised Energy Production**: It contributes to a more resilient and inclusive energy ecosystem by decentralizing energy production and distribution.

History, Art and Culture

1. Revival of the Nalanda University

News: The Prime Minister has inaugurated the campus of Nalanda University.

About the Revival of Nalanda University

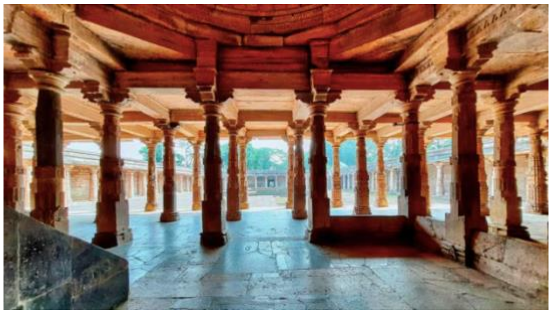
- The new campus is spread across 455 acres, located in **Rajgir**, **Bihar**. The site is only 12 km away from the ruins of the ancient Buddhist monastery.
- The Nalanda University was founded by **Kumaragupta** (Shakraditya) of the **Gupta dynasty** in 427 AD.
- The university was **destroyed in 1193 by Bakhtiyar Khalji**.

- It was rediscovered in 1812 by Scottish surveyor **Francis Buchanan-Hamilton** and later identified as the ancient university by **Sir Alexander Cunningham** in 1861.
- The idea of reviving the University emerged in 2000s. The leaders of East Asia Summit advocated for the return of the University.
- The Parliament of India passed the **Nalanda University Act** in 2010.
- The modern Nalanda University has been envisioned as a **collaborative effort** between India and other **East Asian nations**.
- The **eco-friendly campus** has been designed by architect **BV Doshi**. It is a '**Net Zero' campus**. The campus has a solar plant, water treatment plant, water recycling plant, 100 acres of water bodies etc.
- The University offers programmes in various fields of studies like Buddhist Studies, Historical Studies, Ecology and Environmental Studies, and International Relations.
- The ruins of the ancient Nalanda University were declared as a **UN Heritage Site** in 2016.

2. Bhojshala Complex

News: The Archaeological Survey of India (ASI) has stated in its scientific survey report that the existing structure at the Bhojshala complex was constructed using remains of an earlier temple.

About the Bhojshala Complex



- The Bhojshala Complex is located in **Dhar district of Madhya Pradesh**.
- It was built in **1034 AD by Raja Bhoja** (1000-1055 A.D.) who was the greatest monarch of the **Paramara dynasty**.
- It served as a university where students came to learn music, Sanskrit, astronomy, Yoga, Ayurveda and philosophy.
- The complex was first attacked by Alauddin Khilji in 1305 AD. In 1514 AD, Mehmudshah Khilji II attacked the complex and tried to convert it into a dargah. He encroached on land outside the Saraswati Temple and built the 'Kamal Moulana' Makbara.
- The ASI report said that inscriptions in Sanskrit and Prakrit were found at the site. These inscriptions were datable to the 13th Century CE.
  - Two hymns written in Prakrit, related to the ***Karmavatar*** (crocodile incarnation of Vishnu), are engraved in the rocks of the complex.
  - One inscription contains the Sanskrit alphabet and the main endings of nouns and verbs. Another inscription contains the individual declensions of the ten tenses and moods of Sanskrit grammar.
- In 1951, the complex was declared a **Monument of National Importance** under the **Ancient and Historical Monument and Archaeological Sites and Remains** (Declaration of National Importance) **Act**, **1951**.
- It is **currently protected by the ASI** under the **Ancient Monuments and Archaeological Sites and Remains Act**, **1958**.

3. Abhay Mudra

News: Abhay Mudra holds deep spiritual significance in several religions.

About Abhay Mudra

- It is a gesture characterized by an **open palm facing outward**, often interpreted as a signal to stop.
- It is known as '**fearlessness gesture**', derived from the Sanskrit word "*abhaya*" meaning fearlessness.

- It represents **protection**, **peace**, and the dispelling of fear. In yoga, it is believed to **promote courage** and **reduce fear** and anxiety.
- It is common in many **South Asian religions**, including **Hinduism**, **Buddhism**, **Jainism**, and **Sikhism**. It is particularly significant in Laos and Thailand, where it is associated with images of the **walking Buddha**.
- According to a Stanford University newsletter, the open palm gesture likely originated as a **natural sign of good intentions**, used since prehistoric times. The **raised**, **unarmed hand proposed friendship or peace**.
- In antiquity, it also symbolized power, as seen in the "magna manus" of Roman Emperors, who used the gesture to legislate and grant peace simultaneously.
- The gesture appears to have evolved from a universal form of human communication, later integrated into major South Asian religions.

Religious Significance

- **Buddha and Devdatt**: A legend recounts that Devdatt, a jealous cousin of Buddha, tried to kill Buddha by unleashing a rampaging elephant. As the elephant approached, Buddha displayed the Abhaya Mudra, calming the animal instantly. This gesture thus symbolizes not only the **calming of the senses but also the absence of fear**.

Mudras

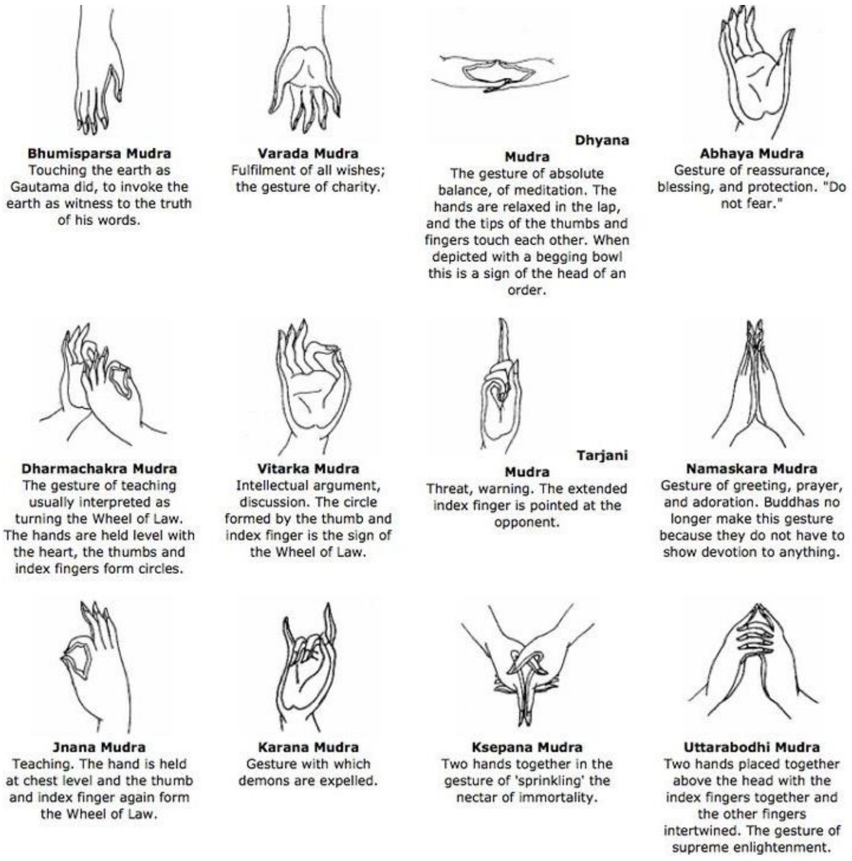
Mudras are **symbolic gestures** that are used in India's **dance forms and yoga**. Some mudras use entire body, while most others use hand and finger gestures.

Each Mudra carries certain meanings.

They facilitate the flow of ***prana*** (energy) in the body and can have **therapeutic benefits**.

In Indian **classical dance forms**, mudras are used to **convey emotions and themes**.

In **yoga** , mudras help in **concentration**, **relaxation**, and the **cultivation of certain qualities**.



Bhumisparsa Mudra
Touching the earth as Gautama did, to invoke the earth as witness to the truth of his words.

Varada Mudra
Fulfilment of all wishes; the gesture of charity.

Dhyana Mudra
The gesture of absolute balance, of meditation. The hands are relaxed in the lap, and the tips of the thumbs and fingers touch each other. When depicted with a begging bowl this is a sign of the head of an order.

Abhaya Mudra
Gesture of reassurance, blessing, and protection. "Do not fear."

Dharmachakra Mudra
The gesture of teaching usually interpreted as turning the Wheel of Law. The hands are held level with the heart, the thumbs and index fingers form circles.

Vitarka Mudra
Intellectual argument, discussion. The circle formed by the thumb and index finger is the sign of the Wheel of Law.

Tarjani Mudra
Threat, warning. The extended index finger is pointed at the opponent.

Namaskara Mudra
Gesture of greeting, prayer, and adoration. Buddhas no longer make this gesture because they do not have to show devotion to anything.

Jnana Mudra
Teaching. The hand is held at chest level and the thumb and index finger again form the Wheel of Law.

Karana Mudra
Gesture with which demons are expelled.

Ksepana Mudra
Two hands together in the gesture of 'sprinkling' the nectar of immortality.

Uttarabodhi Mudra
Two hands placed together above the head with the index fingers together and the other fingers intertwined. The gesture of supreme enlightenment.

Source: Wikimedia Commons. Various forms of Mudras.

4. Samayapurathu Mariamman Temple

News: The Hindu Group of Publications has released a book titled 'Samayapuram - The Sacred Seat of Shakti'. It explores the significance of the Samayapuram temple dedicated to Goddess Mariamman.

About Samayapurathu Mariamman Temple

- The Samayapuram Mariamman Temple is located near **Tiruchi** in Tamil Nadu.

- It is one of the most revered and ancient temples dedicated to **Goddess Mariamman**. She is considered an **incarnation of Goddess Durga**, **Mahakali**, **Adi Shakti**, or **Nishumbha Sudhini**.
- **Historical Background**: The current structure of the temple was built by King Vijayaraya Chakkaravarthi in the early 18th century.
  - However, the Goddess was worshipped by locals for centuries before this structure was constructed. It is believed that she appeared in this area to protect her devotees and heal their ailments.

Architecture

- The temple complex features **intricately carved pillars**, **towering *gopurams*** (gateway towers), and spacious halls that resonate with the chants and prayers of devotees.
- The sanctum sanctorum houses the idol of Goddess Mariamman, adorned with vibrant flowers, intricate jewellery, and colorful garments, exuding a divine and majestic presence.
- The ***Raja Gopuram*** (main tower of the temple) is adorned with gold plates that glow brightly during the daytime.
- A unique feature of this temple is that the presiding deity can be seen from the main entrance, which is not common in most temples

Festivals and Rituals

- The temple is renowned for its vibrant and elaborate festivals which attract thousands of devotees.
- The most significant is the annual '***Poochoriyal***' festival, where devotees offer flowers to the Goddess, seeking her blessings for health, prosperity, and protection.
- Other festivals include the '***Panguni Uthiram***' and the '***Thai Poosam***' which are marked by grand processions, music, dance, and religious fervor.
- Daily rituals include various forms of 'pujas' (prayers) and '*abhishekam*' (ritual bathing) of the deity.
- The temple's sacred '*theerthams*' (holy water sources) are also believed to have curative properties.

5. Criteria for Classical Language

News: The Union Government is planning to revise the criteria for granting the status of Classical Language.

Current Criteria for Declaring a Language as Classical

- **Antiquity**: The language must have early texts or recorded history spanning 1,500-2,000 years.
- **Literary Heritage**: The language should have a body of ancient literature or texts considered valuable heritage by generations of speakers.
- **Original Literary Tradition**: The literary tradition should be original and not borrowed from another speech community.
- **Distinctiveness**: The classical language and its literature should be distinct from the modern form, and there may be a discontinuity between the classical language and its later forms or offshoots.
- **Languages with Classical Status**: Tamil was the first language to be declared as classical language in 2004. This was followed by Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013) and Odia (2014).

Benefits of Classical Language Status

- **Awards**: Two major annual international awards for scholars of eminence in the classical Indian languages.
- **Centres of Excellence**: Establishment of a Centre of Excellence for studies in the Classical Language.

- **Academics**: The University Grants Commission is requested to create a certain number of Professional Chairs for the Classical Languages in the Central Universities.

6. Bankim Chandra Chatterjee

News: The 186th Birth Anniversary of Bankim Chandra Chatterjee was celebrated recently.

About Bankim Chandra Chatterjee

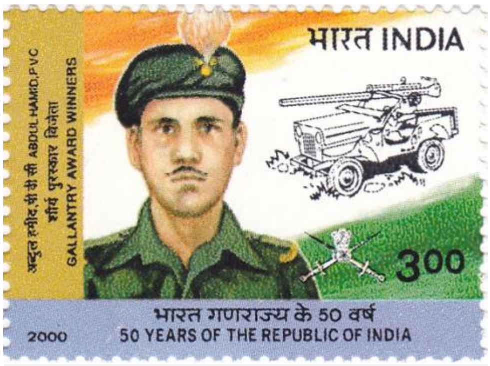
- He was born in 1838 in Naihati, North 24 Parganas, (West) Bengal. He was an admirable novelist, journalist and part of the **Bengali Renaissance**.
- He was the composer of ***Vande Mataram***. The first two verses of the song have been adopted as the **National Song of India**. The Song was the major source of inspiration during the freedom struggle, especially after the **Swadeshi movement** following the partition of Bengal.
- Vande Mataram is part of the novel ***Anandamath*** (1882) which has been set in the background of **Sanyasi Rebellion**, against the backdrop of **Bengal famine of 1770**.
- He had also founded the literary magazine, ***Bangadarshan***. The magazine had a nationalist outlook.
- The other notable works of Bankim Chandra included ***Durgeshnandini*** (1865), ***Kapalkundala*** (1866), ***Devichaudhrani*** (1884), ***Chandrasekhar*** (1877) etc.
- He also served as a **lawyer and district judge**.

7. Abdul Hamid

News: A book based on the life of Abdul Hamid 'Mere Papa Paramvir' was released recently.

About Abdul Hamid

- Abdul Hamid was a brave soldier of the Indian Army. He was part of **4th battalion** of the **Grenadiers Regiment** of the Indian Army.
- Abdul Hamid was **martyred in the 1965 Indo-Pak War**.
- He displayed exemplary bravery in the **battle of Asal Uttar** during the 1965 war. Asal Uttar is situated in Punjab on the Indo-Pakistan border.
- The **Battle of Asal Uttar was the largest tank battle since the World War II**. Abdul Hamid is said to have **destroyed multiple tanks** of the enemy forces (various sources say 2-8 tanks) and held the Pakistani army from advancing. But he was **martyred in the battle**.



Source: Wikimedia Commons. A commemorative stamp issued in the honour of Abdul Hamid in 2000.

- Abdul Hamid was awarded the ***Param Vir Chakra***, India's highest gallantry award, posthumously for his bravery.

8. World Craft City and World Craft Council

News: Srinagar has been recognized as a 'World Craft City' by the World Craft Council (WCC).

About the World Craft Council (WCC)

- It is a non-profit, non-governmental organisation **affiliated with UNESCO**. It was established in 1964.
- Its mission is to **promote the preservation**, **protection**, and **development of traditional crafts**. It also aims to **foster economic development through crafts**.

- It was founded by Ms. Aileen Osborn Vanderbilt Webb, Ms. Margaret M. Patch, and **Smt**. **Kamaladevi Chattopadhyay** at the 1st World Crafts Council General Assembly in New York in June 1964.

About World Craft City

- The World Craft City Recognition is given by the WCC.
- This designation is given to cities **excelling in the promotion and development of traditional crafts** and **artisanship**.
- It acknowledges the city's commitment to preserving its **unique craft heritage** and **supporting local artisans**.
- **Jaipur**, **Malappuram**, and **Mysore** are the other Indian cities previously recognized as World Craft Cities.

Significance of World Craft City Status

- **International Prestige**: It elevates the city's status globally as a center of excellence for crafts.
- **Economic Benefits**: It boosts the local economy by **attracting tourists**, **investors**, and **buyers** interested in authentic crafts. It also increases **market opportunities for artisans**.
- **Cultural Preservation**: It highlights the city's dedication to preserving traditional crafts. It ensures these cultural practices are passed down to future generations.
- **Support for Artisans**: It leads to **increased support for local artisans**, including funding, training, and opportunities for international collaboration and exchange.
- **Promotion of Innovation**
  - It encourages blending traditional techniques with modern designs.
  - It fosters creativity and sustainability within the craft sector.
  - It increases the city's and its crafts' visibility through international media coverage, exhibitions, and events associated with the WCC. *(Refer EPIC December 2023 for UNESCO Creative Cities Network)*.

Criteria for Recognition as a World Craft City

- The city must have a **significant population of skilled artisans**.
- It must demonstrate **active promotion and development of craft traditions**.
- It shows **commitment to preserving cultural heritage** and supporting sustainable practices.
- There should be evidence of **innovation and creativity in craft practices**.
- There should be strong community involvement and support for the craft sector.

Miscellaneous

1. Deep Drilling Project

News: A deep drilling project is being conducted in Karad, Maharashtra.

About the Deep Drilling Project

- The Borehole Geophysics Research Laboratory (BGRL) is conducting a deep-drilling project in Karad, Maharashtra, to **study reservoir-triggered earthquakes** in the Koyna-Warna region.
- The goal is to drill a **6-km deep borehole** to **gather data on earthquakes** and the Earth's crust.
- Deep Drilling projects provide opportunities to study earthquakes and enhance understanding of Earth's history, rock formations, energy resources, life forms, climate change patterns, and more.

Importance of Deep Drilling

- **Understanding Earthquakes**: Deep drilling allows scientists to directly observe and study the Earth's interior, helping understand and predict earthquakes, especially those in the interior of tectonic plates.

- **Comprehensive Analysis**: It provides insights into rock types, geological history, energy resources, and climate change.

Challenges in Deep Drilling

- The Earth's interior is hot, dark, and high-pressure, making long-term large-depth drilling difficult.
- Issues include maintaining drilling pressure, handling rock cores, and dealing with water inflow and fault zones.
- Skilled personnel are required for continuous, on-site engagement for extended periods.

Findings from the Drilling in Karad, Maharashtra

- The pilot borehole has revealed ancient Deccan trap lava flows and granitic basement rocks.
- Measurements have provided data on rock properties, fluid composition, temperature, stress regimes, and fracture orientations.
- **Water has been found at a depth of 3 km**, indicating deep percolation. The region is **critically stressed**, meaning even small stress changes can trigger earthquakes.

Future Prospects

- Data from the pilot borehole will guide future drilling. Researchers are studying rock samples to understand earthquake mechanics and **microbial life in extreme environments**.
- Global researchers are interested in using the core samples for studies, including **carbon capture and storage**.

2. Falling Snow Persistence in the Ganga, Indus and Brahmaputra River Basins

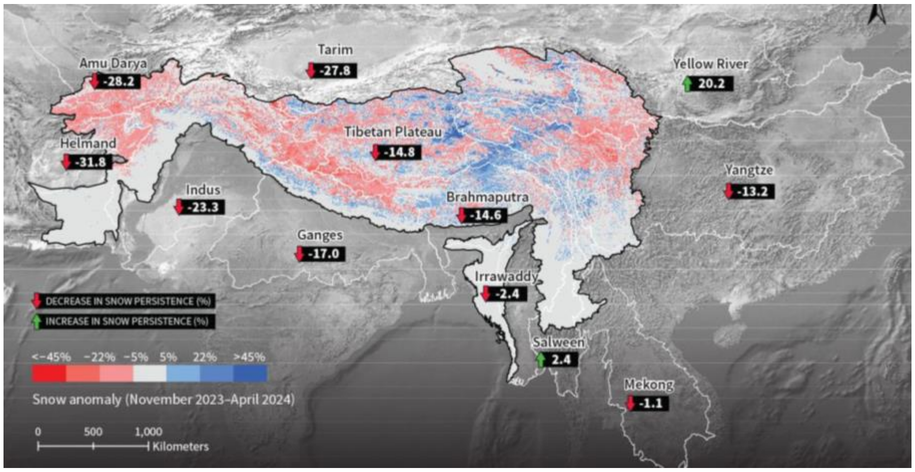
News: A report by the International Centre for Integrated Mountain Development (ICIMOD) has revealed that snow persistence in the Ganga, Indus and Brahmaputra basins is falling rapidly.

Key Findings of the Report

- The scientists analysed data from 2003 to 2024 and found significant fluctuations in snow persistence between November and April every year, when snow accumulates above ground.
- The snow persistence in the Ganga, the Brahmaputra, and the Indus river basins **dropped significantly in 2024**.
- The Ganga river basin witnessed its lowest snow persistence in 22 years, **17% below the long-term historical average** ('normal'). In 2015, on the other hand, snow persistence was 25.6% above normal.

Snow Persistence

Snow persistence is the **fraction of time snow is on the ground**. When this snow melts, it provides water to people and ecosystems. **Snow melt contributes 23% of the runoff to the Himalayan region's 12 major river basins every year**. These river basins provide water to almost one-fourth of the world's population.



- The snow persistence in the Brahmaputra basin was **14.6% below normal in 2024**. It was worse in 2021, when the average persistence was 15.5% below normal.
- In the **Indus river basin, snow persistence fell 23.3% below normal in 2024**.
- The basin of the Amu Darya river (flows through Central Asia) recorded its lowest snow persistence in 2024: 28.2% below normal.

Reasons Behind Low Snow Persistence

- **Weakened Western Disturbances and Global Warming**: The study reveals that weakened western disturbances from the warmer seas in the Mediterranean Sea has reduced winter precipitation and snowfall in the Hindu Kush Himalayan region.
- Global warming has intensified **La Niña and El Niño events,** further decreasing the snow persistence.
- The pattern of **high temperatures** and **altered weather systems** explains the **low snow persistence** in 2024.

3. UN Report on Indian and Global Population Projection

News: The UN has estimated that India will remain the world's most populous nation for the entire century.

Key Highlights of the UN Report

- According to a UN report, India's population is projected to reach **1.5 billion by 2100** which will be double that of China's projected 633 million. China is projected to lose more than half of its current population.

World Population Day

The World Population Day is celebrated every year on **July 11**. It is being celebrated since July 11, 1987, when the world population was estimated to have **reached 5 billion**.

- **Current Population**: India's current population is estimated at 1.451 billion which is nine million more than previously estimated two years ago.
  - **By 2085**, India's population will be **1.61 billion**, twice that of China's 806 million.
- **India's Demographic Transition**: India's population is expected to peak at **1.701 billion in 2061**. The working-age population in India will peak by 2049, reaching 1.027 billion.
- **Fertility Rates**: India's fertility rate fell below the replacement level of 2.1 in 2020 and is **at 1.962** at present.
- **Global Population Rankings by 2100**: By 2100, India and China will be followed in population rankings by Pakistan with 511 million people, Nigeria with 477 million, the Democratic Republic of the Congo with 431 million, and the US with 421 million. The population growth in the US will primarily be **driven by immigration**.
- **Global Population Trends**: The global population is projected to **peak at 10.29 billion in 2084**.
  - The global fertility rate in 2024 is 2.25 births per woman. It is below the replacement level in over half of all countries.
- **Life Expectancy**: Life expectancy has returned to pre-pandemic levels and is projected to increase to 77.4 years by 2054. By 2054, more than half of global deaths are likely to occur at age 80 or higher.
- **Child Mortality**: The number of deaths among children under five fell below 5 million for the first time in 2023. However, high levels of child mortality persist in regions such as the Democratic Republic of the Congo, India, Nigeria, and Pakistan.

4. UN Sustainable Development Goal Report 2024

News: The report has been released by the UN Sustainable Development Solutions Network (SDSN).

Key Highlights of the Report

- **None of the 17 Sustainable Development Goals** (SDGs) **are on track** to be achieved by 2030, and only an estimated **16% of the SDG targets are progressing**.

- **50% of the targets under SDG 2 have regressed**, while 15% have stagnated. ~10% people globally face hunger.
  - In 2022, some 735 million people, or **9.2% of the world's population**, were in a state of **chronic hunger**, a significant increase from **7.9% in 2019**.
- Similar trends were observed regarding **SDG 13** (Climate Action), **SDG 14** (Life below Water), and **SDG 8** (Decent Work and Economic Growth).
  - ~40% of the targets under **SDG 14** (Life below water) have regressed. The sustainability of global fishery resources has declined from 90% in 1974 to 62.3% in 2021 due to overfishing, pollution, poor management and other factors.
- Over 30% of the targets under **SDG 13** (Climate action) and **SDG 8** (decent work and economic growth) have regressed.
  - In 2022, global greenhouse gas emissions reached a record 57.4 gigatonnes of CO_2-equivalent. Emissions from all major sectors, except transportation, have rebounded since the pandemic and now exceed 2019 levels. **The CO_2 levels are now 150% above pre-industrial levels.**
- 60% of the targets under **SDG 1** (ending poverty) have shown marginal progress. By 2022, extreme poverty had returned to pre-pandemic levels in most countries.
  - **~9% of the world's population lived in extreme poverty in 2022**. 6.9% of the global population, may remain in extreme poverty by 2030.
- Progress towards **SDG 9** (Industry, Innovation, and Infrastructure), is showing slightly positive trends.
- **India has been ranked 109 in the SDG Index**. India is on track to achieve only **30% of its SDG Targets**. There has been limited progress in the other 40% of the targets and in ~30% of targets the situation is worsening.

5. UN Global Principles for Information Integrity

News: The UN Secretary General has unveiled the UN Global Principles for Information Integrity to curb the spread of online misinformation, disinformation and hate speech.

About the UN Principles for Information Integrity

- These Principles have been designed to address the widespread **harm caused by false information on digital platforms**. *(Refer EPIC March 2023 for Controlling Fake News).*
- According to the UN Secretary General, the initiative is aimed to **prioritise human rights** and support sustainable development, climate action, democracy, and peace.
- The 5 Principles are:
  - **Societal Trust and Resilience**: Building societal trust and resilience to counteract the spread of mis-information and hate speech.
  - **Incentives**: Creating incentives that promote truthful and constructive content while discouraging the spread of harmful misinformation.
  - **Independent, Free, and Pluralistic Media**: Ensuring independence of the media, freedom, and diversity to support high-quality journalism and diverse viewpoints.
  - **Transparency and Research**: Enhancing transparency and supporting research to understand and mitigate the impact of misinformation and to develop effective solutions.
  - **Public Empowerment**: Empowering the public with the tools and knowledge to **critically assess information**, **protect their rights,** and participate in the information ecosystem responsibly.
- The UN Secretary General in his address at the launch had observed that treats to information integrity are now spreading at unprecedented speeds due to **digital platforms** and **AI technologies**.
  - Opaque algorithms create **information bubbles** and **reinforce prejudices**.
- The rise of misinformation and hate speech online has **fuelled prejudice**, **exacerbated conflicts**, and **undermined the integrity of elections**.

  - Misinformation about vaccines and medical treatments has added to the problems of humanitarian relief.
- In this context, the principles form the foundation of a vision for a more **humane information ecosystem**.

6. UN Water Convention

News: Ivory Coast has become the 53rd party to the UN Water Convention.

About the UN Water Convention

- It is also known as the **Convention on the Protection and Use of Transboundary Watercourses** and **International Lakes**. It was adopted in Helsinki in 1992 and entered into force in 1996.
- It is a **legally binding instrument** that **promotes the sustainable management of shared water resources**, supports the implementation of the SDGs, prevents conflicts, and fosters peace and regional integration.
- The Convention was originally negotiated as a regional framework for the pan-European region. Following an amendment procedure, all UN Member States have been able to accede to it since March 2016.
- Parties to the Convention are required to **prevent**, **control**, and **reduce transboundary impacts**, use trans-boundary waters in **a reasonable and equitable way**, and ensure their **sustainable management**.
- Parties that border the same transboundary waters must cooperate by entering into specific agreements and establishing joint bodies.
- As a framework agreement, it **does not replace bilateral and multilateral agreements** for specific basins or aquifers and instead it fosters their establishment, implementation, and further development.
- The **United Nations Economic Commission for Europe** (UNECE) services the UN Water Convention.

7. Gallantry Awards

News: The President of India presented Gallantry Awards at the Defense Investiture Ceremony held at the Rashtrapati Bhawan.

About Gallantry Awards

- They have been instituted to honour the **acts of extraordinary bravery** during times of war and peace.
- These gallantry awards are **announced twice in a year**; on **Republic Day** and **Independence Day**.
- Post-independence, first three gallantry awards namely **Param Vir Chakra**, **Maha Vir Chakra** and **Vir Chakra** were instituted by the Government of India on January 26, 1950 which were deemed to have effect from the August 15, 1947.
- Other three gallantry awards i.e. Ashoka Chakra Class-I, Ashoka Chakra Class-II and Ashoka Chakra Class-III were instituted by the Government of India on January 04, 1952, which were deemed to have effect from the August 15, 1947.
  - These awards were renamed as **Ashoka Chakra**, **Kirti Chakra** and **Shaurya Chakra** respectively in 1967.
- The **Order of Precedence** of the Awards are: **(1)** Param Vir Chakra; **(2)** Maha Vir Chakra; **(3)** Vir Chakra; **(4)** Ashoka Chakra; **(5)** Kirti Chakra; **(6)** Shaurya Chakra.

PARAM VIR CHAKRA
MAHA VIR CHAKRA
VIR CHAKRA
ASHOKA CHAKRA
KIRTI CHAKRA
SHAURYA CHAKRA

Source: Government of India. Gallantry Award Medals and the Ribbon.

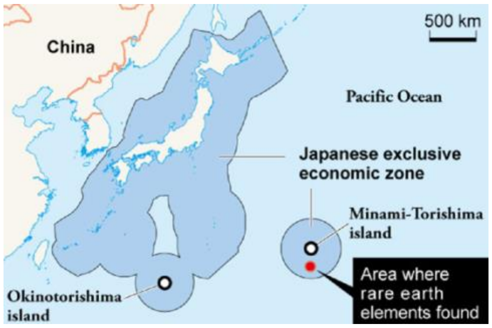
1. Cold Lava

Cold lava comprises a **mixture of water** and **rock fragments** that **flows rapidly down the slopes of a volcano**, entering river valleys and spreading across wide areas. It is also known as "***lahar***" in Javanese (Java, Indonesia). Volcanic eruptions themselves can generate *lahars* by **melting snow** and **ice present on the volcano** or through **pyroclastic flows** that mix with water. **Lake breakout** floods caused by volcanic landslides can also transform into *lahars*.

This cold lava can flow at **speeds exceeding 70-80 kms/hour** (sometimes even 100 kms/hour) and reach distances as far as 60 km from the volcano posing a **significant threat to anything in its path**.

According to the **United States Geological Survey**, *lahars* are considered **more destructive and deadlier than regular lava flows**. They have the potential to crush or bury almost anything, and by destroying infrastructure such as bridges and roads, they can trap people in areas that are vulnerable to further volcanic activities.

2. Minami-Torishima Island


China
500 km
Pacific Ocean
Japanese exclusive economic zone
Minami-Torishima island
Area where rare earth elements found
Okinotorishima island

Japan has found **~230 million metric tonnes of minerals** crucial for making **electric car batteries** on the seabed off **Minami-Torishima Island**. It is also known as Marcus Island. It is an isolated **coral atoll** in the **northwestern Pacific Ocean**. It is the **easternmost territory belonging to Japan**. The island lies 1,950 km southeast of central Tokyo.

The shape of the island is close to an **equilateral triangle**. Minami-Torishima Island is formed by a **raised coral reef**. The terrain is flat, with a maximum altitude of 9 meters. The island is located in the **transitional zone between tropical and subtropical climates**. It has an **oceanic climate**.

The exclusive economic zone based on the baseline of Minami-Torishima Island covers ~430,000 km², which is larger than Japan's land area.

3. Lake Natron

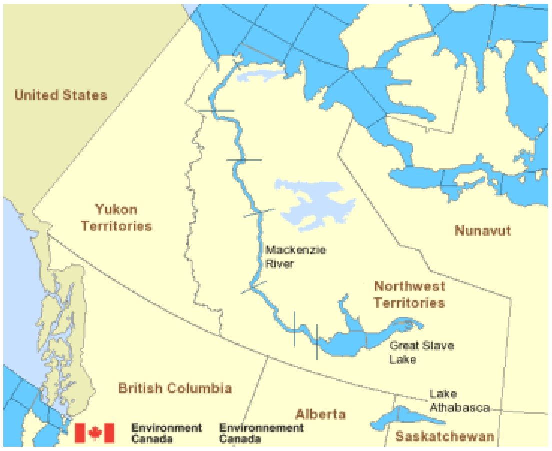
Rwanda
Butare
Burundi
Migori
Olenguruone
Nairobi
Kitui
Kenya
Mwanza
Karatu
Arusha
Malindi
Mombasa
Kigoma
Kazuramimba
Tabora
Tanga
Kalemie
Zanzibar Town
Tanzania
Mpwapwa
Morogoro
Dar es Salaam
Ruaha National Park
Mbeya

Experts have noted a **steady decline in the flamingo population** at Lake Natron, as extreme weather and encroachment cause fewer birds to return each year. The Lake is situated on the **border between Tanzania and Kenya**. It is part of the eastern branch of the **Great Rift Valley**.

It contains warm waters with **high levels of salt**, caustic soda, and magnesite deposits. It is **ideal conditions for flamingos to thrive**. The lake's extreme alkalinity gives it a **striking red hue**. It is recognized as a **Ramsar site**. It is fed by the Ewaso Ng'iro River which originates from central Kenya. Agriculture, pollution, and climate change pose significant threats to this unique ecosystem.

4. Mackenzie River

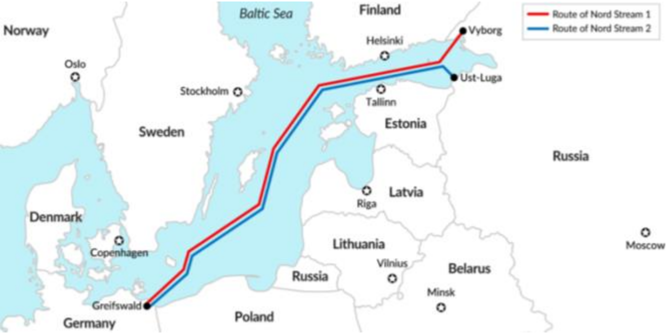
The Mackenzie River flows through Canada's Northwest Territories. It is the **longest river system in Canada**, stretching ~1,650 km (1,025 miles). The river originates from **Great Slave Lake** and empties into


United States
Yukon Territories
Nunavut
Mackenzie River
Northwest Territories
Great Slave Lake
British Columbia
Alberta
Lake Athabasca
Saskatchewan
Environment Canada
Environnement Canada

the **Beaufort Sea** in the **Arctic Ocean**. It has been crucial for transportation and **the extraction of natural resources**. The River basin is home to a diverse range of wildlife, including numerous fish species, migratory birds, and mammals such as beavers and moose. The river also supports activities such as **tourism and hydroelectric power generation**, making it a vital component of the regional economy.

The Mackenzie River is currently experiencing **record-low water levels due to extreme heat** and **minimal precipitation**. These conditions have severely impacted local communities that depend on the river for transportation and fishing.

5. Nord Stream Pipelines


Norway
Baltic Sea
Finland
Helsinki
Vyborg
Route of Nord Stream 1
Route of Nord Stream 2
Oslo
Stockholm
Tallinn
Ust-Luga
Estonia
Sweden
Russia
Latvia
Riga
Denmark
Copenhagen
Lithuania
Moscow
Vilnius
Belarus
Russia
Minsk
Greifswald
Germany
Poland

Explosions were reported in September 2022 in the Nord Stream pipelines between Russia and Europe. Researchers have now found that between 10,000-50,000 tonnes of the methane gas dissolved into the surrounding seawater and didn't reach the atmosphere.

Nord Stream 1 is a 1,224 km underwater gas pipeline running from **Vyborg in northwest Russia** to **Lubmin in northeastern Germany** via the **Baltic Sea**. It is primarily owned by the Russian energy giant Gazprom and is the main network for gas delivery to Germany.

Nord Stream 2 is 1,200 km pipeline planned to run from **Ust-Luga in Russia** to **Greifswald in Germany** through the **Baltic Sea**, with a capacity to carry 55 billion cubic meters of gas per year.

It has been designed to operate **alongside the Nord Stream 1 system**. It was completed in September 2021, but **never entered into the service** as the Russia-Ukraine war began.

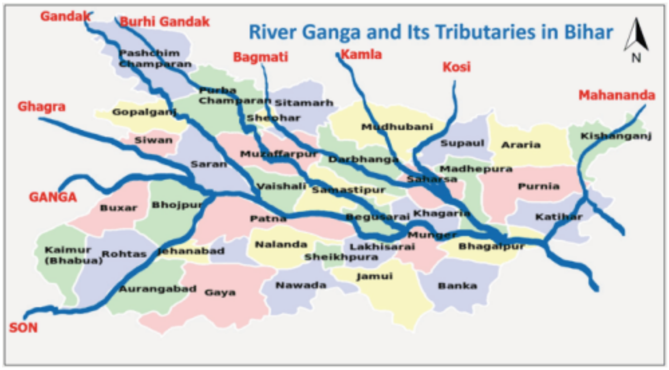
6. Groynes

They are **grey adaptation measures** implemented to **counteract erosion** and **wave action** in **coastal areas** (or in some case in rivers).

They are **shore protection structure** built **perpendicular to the shoreline** of the coast (or river), over the beach and into the shoreface (the area between the nearshore region and the inner continental shelf), to **reduce longshore drift and trap sediments**. They are designed to **dissipate wave energy**, and restrict the transfer of sediment away from the beach. They are very effective at protecting the coastline in the short-term.

7. Bagmati River

It flows through south-central Nepal and northern Bihar, India. The river originates from **Bagdwar area** in the Shivapuri Hills, located in the **north-western part of Kathmandu Valley**.


River Ganga and Its Tributaries in Bihar
N
Gandak
Burhi Gandak
Bagmati
Kamla
Kosi
Mahananda
Ghagra
GANGA
SON
Pashchim Champaran
Purba Champaran
Sitamarh
Sheohar
Gopalganj
Siwan
Saran
Muzaffarpur
Darbhanga
Mudhubani
Supaul
Araria
Kishanganj
Madhepura
Saharsa
Purnia
Vaishali
Samastipur
Buxar
Bhojpur
Patna
Begusarai
Khagaria
Katihar
Munger
Bhagalpur
Kaimur (Bhabua)
Rohtas
Jehanabad
Nalanda
Lakhisarai
Sheikhpura
Jamui
Aurangabad
Gaya
Nawada
Banka

It flows southward through the **Shivalik Range**, the southernmost range of the Himalayas. The river continues across the plains of Tarai into Bihar. It then flows south-eastward to **join the Burhi Gandak river**. The total course of the river is ~360 km.

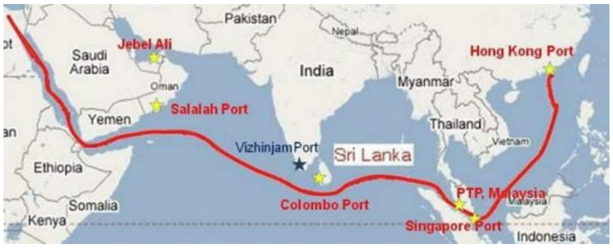
The river is **considered holy** by both **Hindus and Buddhists**. The banks of the Bagmati River are home to **various temples**, including the **Pashupatinath Temple** which is a **UNESCO World Heritage Site**.

8. Shyok River

It originates from the **Rimo Glacier**. The Rimo glacier is one of the **tongues of the Siachen Glacier**. The river gets its name from a Ladakhi word meaning 'the river of death'.

It flows through **northern Ladakh** and enters the Pakistan-administered region of Gilgit-Baltistan. It meanders through the high-altitude deserts and mountain ranges of Ladakh before converging with the Indus. Its total length is ~ 550 km and it is regularly **fed by meltwater** from numerous glaciers on its journey. Its main right-bank tributary is the **Nubra River**.

9. Vizhinjam Port


Pakistan
Nepal
Saudi Arabia
Jebel Ali
India
Hong Kong Port
Myanmar
Oman
Salalah Port
Yemen
Thailand
Vietnam
Vizhinjam Port
Sri Lanka
Ethiopia
Somalia
Colombo Port
PTP, Malaysia
Malaysia
Kenya
Singapore Port
Indonesia

It is located in Thiruvananthapuram District of Kerala. It has been developed under a **landlord model** with a **Public Private Partnership** component on a **Design**, **Build**, **Finance**, **Operate**, and **Transfer** (DBFOT) basis. It has been primarily designed to cater to **container transshipment**. It will also be a **global bunkering hub**, supplying clean, green fuels like hydrogen and ammonia. (Bunkering is the supply of fuel for use by ships in a seaport). The port will be one of the world's greenest ports in the world.

It is ~10 nautical miles (NM) diversion from the **international east-west shipping route** connecting Europe, the Persian Gulf, and the Far East. ~30% of global freight movement occurs through this route. ~95% of India's foreign trade volume (70% by value) is conducted via sea route.

10. International Hydrographic Organization (IHO)

IHO is a group of countries working together to make sure all the world's seas, oceans, and navigable waters are **mapped and charted accurately**. It was established in 1921. It coordinates the work of national hydrographic offices to ensure nautical charts and documents are uniform. Its headquarters are in Monaco. The **IHO has 100 member countries**. India has been a member of the IHO since 1955.

The **Indian Naval Hydrographic Department** (INHD), formerly known as the **Marine Survey of India**, was established in 1874 in Kolkata. INHD is responsible for hydrographic surveys in India and operates a fleet of modern survey ships built in India.

11. Codex Alimentarius Commission (CAC)

It is an **international food standards body** jointly established by the **Food and Agriculture Organization** (FAO) and the **World Health Organization** (WHO) in 1963. Its mission is to **develop and harmonize food**

standards at the global level. The CAC has 189 Codex Members, including 188 Member Countries and 1 Member Organization (The European Union). **India became a member in 1964**. Its objectives include to develop and adopt **international food standards** (**Codex Standards**); Ensure food safety and quality and to protect consumer health.

Its provisions cover various aspects of food safety, like **hygiene**, **additives**, **contaminants**, **labelling**, and **risk analysis**.

12. Exercise HOPEX

It is joint exercise of the **Indian Air Force** and the **Egyptian Air Force**. This year's exercise was held in Egypt. Its aim is to enhance bilateral and regional cooperation, symbolizing the enduring relationship between the two nations.

13. Exercise MAITREE

It is **India-Thailand joint military exercise**. The aim of Exercise MAITREE is to foster military cooperation between India and Thailand.

14. Exercise Nomadic Elephant

It is **bilateral joint military exercise between India and Mongolia**. Its primary theme is **counter-terrorism operations** in mountainous terrain under United Nations mandate (Chapter VII).

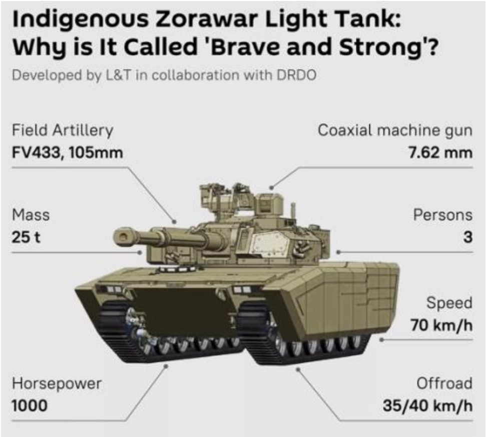
15. Exercise Pitch Black

It is **biennial multinational exercise** hosted by the **Royal Australian Air Force**. This year **Indian Air Force also participated** in the exercise. The exercise focuses on **Large Force Employment warfare**, enhancing **international cooperation** and **operational experience**. This year's exercise marked the largest edition in its 43-year history, involving 20 countries, 140+ aircraft.

16. Zorawar Tank

DRDO has unveiled the prototype of **indigenous light tank, Zorawar**. It will now undergo extensive trials. It has been developed in collaboration with Larsen & Toubro (L&T). It is **powered by imported engine** manufactured by **Cummins**. DRDO has taken up a project to **develop a new engine domestically**. The tank will be tested in various conditions including summer, winter and **high altitude**, and is expected to be handed over to the Army for user trials by August 2025.

The need for a light tank (weighing maximum 25 tonnes) emerged during the 2020 standoff with China in Eastern Ladakh, highlighting the requirement for lightweight, easily deployable tanks.


Indigenous Zorawar Light Tank: Why is It Called 'Brave and Strong'?
Developed by L&T in collaboration with DRDO
Field Artillery FV433, 105mm
Coaxial machine gun 7.62 mm
Mass 25 t
Persons 3
Speed 70 km/h
Horsepower 1000
Offroad 35/40 km/h

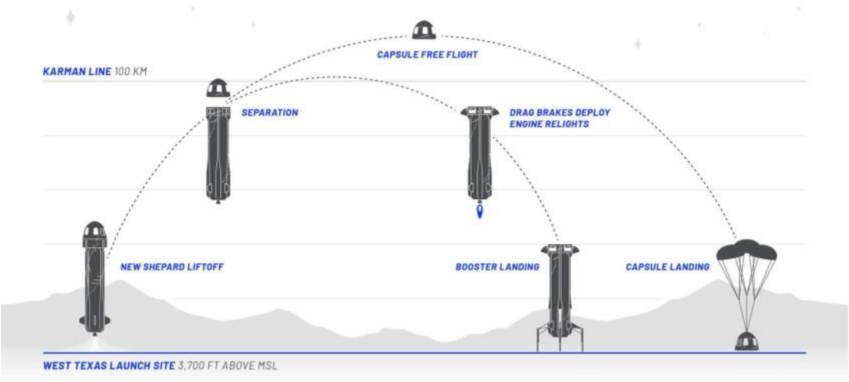
17. NASA to train Indian Astronauts

The US and India have concluded the **Strategic Framework for Human Spaceflight Cooperation** to **deepen interoperability in space**. India and US are working toward commencing advanced training for ISRO astronauts at the NASA Johnson Space Centre, Houston, Texas.

NASA has also said that the space agency will **expand collaboration with India** and it will include a "joint effort" aboard the **International Space Station** with an Indian astronaut.

ISRO-NASA collaboration is part of the **iCET Initiative** that was launched in May 2022 to forge greater collaboration between India and the US in areas of **critical technologies**.

18. New Shepherd Spacecraft

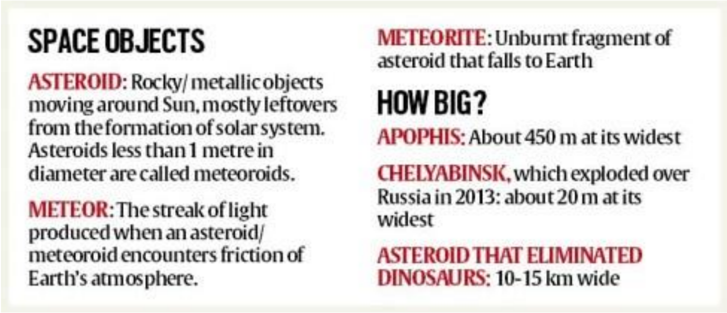


Blue Origin (led by Jeff Bezos) has partnered with **Space Exploration and Research Agency** (SERA) to launch the New Shepard spacecraft.

It is a **suborbital space travel vehicle** designed for **scientific research** and **space tourism**. It is named after **Alan Shepard** who was the first American to go to space.

It features a **fully reusable rocket system** intended for human spaceflight, consisting of a reusable booster and a **pressurized crew capsule** that can accommodate **six passengers**. The spacecraft's 11-minute journey takes passengers beyond the **Karman line**, where they experience several minutes of **weightlessness** before making a controlled descent back to Earth aided by parachutes.

19. Asteroid Apophis



SPACE OBJECTS

ASTEROID: Rocky/ metallic objects moving around Sun, mostly leftovers from the formation of solar system. Asteroids less than 1 metre in diameter are called meteoroids.

METEOR: The streak of light produced when an asteroid/ meteoroid encounters friction of Earth's atmosphere.

METEORITE: Unburnt fragment of asteroid that falls to Earth

HOW BIG?

APOPHIS: About 450 m at its widest

CHELYABINSK, which exploded over Russia in 2013: about 20 m at its widest

ASTEROID THAT ELIMINATED DINOSAURS: 10-15 km wide

It is a large asteroid discovered in 2004. It is ~ 450 m wide. Initially, scientists had thought that Apophis had a small chance of hitting Earth in 2029, 2036, or 2068. This raised concerns due to its potential for causing major damage. Further observations have shown that **Apophis will pass Earth at a safe distance of 32,000 km** in 2029. It poses no immediate threat during this pass or in subsequent expected encounters.

ISRO has shown interest in studying Apophis. ISRO may send its own spacecraft or collaborate with other space agencies like NASA, which already has a mission planned.

ISRO aims to develop capabilities to **track and potentially mitigate threats from asteroids**. This involves studying their trajectories and characteristics to better understand their behavior.

20. International Asteroid Day and Tunguska Event

It is observed on June 30 every year, on the anniversary of Tunguska event that happened on June 30, 1908. International Asteroid Day was designated by the UN in 2016 to promote global efforts in **planetary defence**.

Tunguska event was a **large explosion** that occurred in **Siberian region of Russia**. It had flattened an estimated 80 million trees over an area of 2,150 km^2 (830 sq mi) of forest.

The explosion is generally attributed to a **meteor air burst**, the atmospheric explosion of a stony asteroid about **50–60 metres** (160–200 feet) **wide**. The asteroid approached with a relatively high speed of about **27 km/s** (97,200 kmph). Though the incident is classified as an **impact event**, the object is thought to have **exploded at an altitude of 5 to 10 kilometres** (3 to 6 miles) rather than hitting the Earth's surface, leaving no **impact crater**.

21. AI-Washing

The term AI-washing is derived from 'greenwashing' (companies exaggerating their environmental friendliness to attract customers). AI-washing involves businesses **claiming to have integrated sophisticated AI into their products** while **using much less advanced technology**. It is a **deceptive promotional practice** where **companies exaggerate** or **falsely claim** their products or services use AI. The objective is to capitalize on the growing interest in AI and make their offerings **appear more advanced** and cutting-edge **than they actually are** e.g., a company may claim that they are using AI-enabled Chatbot while the actual product may only be based on some keywords and pre-written responses. It is problematic because it can lead to businesses **overpaying for technology** and services that **do not deliver the expected benefits** and failing to achieve operational objectives.

It makes it difficult for investors to identify genuinely innovative companies, potentially leading to **misinformed investment decisions**.

22. CAMCOPTER S-100

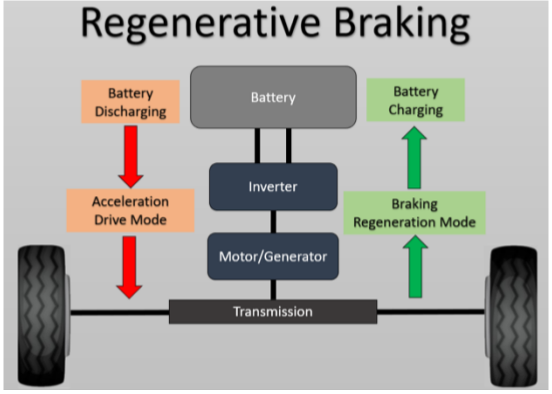
1023
NAVY नौसेना

It is an Austria-made **unmanned aerial vehicle** (UAV) using a rotorcraft design.

It has a maximum take-off weight of 200 kg. It is powered by a **heavy fuel engine**. It offers an endurance of 6 hours. The UAV has a maximum speed of 220 km/hr and can reach a height of 5,500 meters. The S-100 can carry multiple payloads, both **surveillance and tactical** in nature, with a maximum payload weight of 50 kg. It can operate under day and night and under adverse weather conditions.

The **Indian Navy** is utilizing S-100 to undertake **Intelligence Surveillance & Reconnaissance** (ISR) to monitor the sea lanes of communication in the **Indian Ocean Region** (IOR).

23. Regenerative Braking



Regenerative braking is a **technology used in electric and hybrid vehicles** to **capture and reuse energy** that would otherwise be lost during braking.

In traditional vehicles, **braking converts the car's kinetic energy into heat**, which is then wasted.

In vehicles with regenerative braking, **pressing the brake pedal causes the electric motor to run in reverse**. This reverse action slows down the car similarly to traditional brakes. Instead of converting kinetic energy into heat, the **motor converts it back into electrical energy**. The electrical energy is then stored in the **vehicle's battery for later use**. Regenerative Braking **saves energy by reusing it**, reducing the need for frequent battery recharges. It **extends the range of the EVs**. It also reduces the wear and tear of brake components.

However, Regenerative braking alone can't bring a vehicle to a complete stop and must be supplemented by conventional braking systems.

24. Steel Slag Road Technology

The **Central Road Research Institute** (CRRI) has developed this technology in collaboration with the **Ministry of Steel** and **major steel manufacturing companies**. Its purpose is to address environmental challenges posed by **steel slag waste (**a byproduct of steel production). It utilizes steel slag to **build robust and durable roads**. Steel slag is processed to **remove impurities and metal content**, then used as an aggregate for road base or sub-base layers. It is eco-friendly and reduces landfill burden. It is ~30% cheaper than conventional paving methods. It is durable, resists weather changes, leading to **reduced maintenance costs**. It also eliminates reliance on natural materials.

The first Steel Slag Road in Surat, Gujarat has received recognition for its technological excellence.

25. 5G Intelligent Village Initiative

It aims to **uplift rural communities** by harnessing the transformative power of **5G technology**. Its focus will be in key sectors like agriculture, education, healthcare, governance, and sustainability. It utilizes **Ultra-Reliable Low-Latency Communication** (URLLC) and **massive Machine Type Communication** (mMTC) **features of 5G** in selected villages.

26. Reverse Transcriptase

It is an **enzyme** that can **reverse the usual flow of genetic information** by **converting RNA into DNA**. Its discovery changed the understanding of genetic information flow and revolutionized research methods, allowing scientists to study genes more effectively.

The enzyme is crucial in **molecular diagnostics**, converting viral RNA into DNA to measure viral loads especially in diseases like **hepatitis B** and **HIV**. Reverse transcriptase inhibitors became a fundamental part of treating HIV/AIDS which is significantly improving patient survival rates.

Reverse transcriptase is also a fundamental component of a laboratory technology known as **Reverse Transcription-Polymerase Chain Reaction** (RT-PCR), a powerful tool used in research and in the diagnosis of diseases. During the COVID-19 pandemic, the enzyme was widely used in labs worldwide. It became the gold standard for **detecting the SARS-2 virus** through diagnostic tests.

27. World Zoonoses Day

It is celebrated in honour of **Louis Pasteur** who administered the **first successful rabies vaccine** on **July 6, 1885**. The day is **dedicated to raising awareness about zoonoses** (zoonotic) **diseases** and **promoting preventive and control measures**.

Zoonoses are **infectious diseases** that can **transfer between animals and humans**, such as **rabies**, **anthrax**, **influenza** (H1N1 and H5N1), **Nipah**, **COVID-19**, **brucellosis**, and **tuberculosis**. These diseases are caused by various pathogens, including bacteria, viruses, parasites, and fungi. However, not all animal diseases are zoonotic. Many diseases affect livestock without posing a risk to human health like the lumpy skin disease.

Prevention and control of zoonotic diseases rely on **vaccination**, **good hygiene**, **animal husbandry practices**, and **vector control**. Collaborative efforts through **One Health approach**, which emphasizes the interconnectedness of human, animal, and environmental health, are crucial.

28. Balon Protein

Balon protein helps the bacterium *Psychrobacter urativorans* to **inhibit its cellular activities** when faced with **unfavourable external conditions**, and **resume the activities** once **favourable conditions return**. Balon protein **prevents the ribosomes from making new proteins** during the inactive phase and resume **protein synthesis** once conditions improve. The discovery of Balon protein can help understand **how bacteria survive harsh environment conditions** like the **Arctic Permafrost**.

29. Radiation Biodosimetry

It is extremely important in responding to a **large-scale radiological (leak) event**, such as a reactor accident. It helps in the **assessment of the level of radiation** and the **administration of drugs in accordance with the exposure levels**.

It is the determination of the **amount of radiation to which an individual has been exposed to**, based on changes in **blood**, **urine**, or **hair**. It is particularly useful in a radiological event, where the exposed individuals do not carry any personal radiation monitoring devices. It utilizes methods like Gold Standard Biodosimetry Assay/Dicentric Chromosome Assay (DCA) or the Cytokinesis Block Micro-nucleus Assay (CBMN).

30. U-WIN

The initiative has been rolled out on a pilot basis with the aim of **digitizing the Universal Immunization Programme** (UIP). U-WIN will be used to **register and vaccinate every pregnant woman**, record her delivery outcome, register delivery of every newborn, and the administration of vaccinations.

U-WIN will be the **single source of information for immunisation services**, updating vaccination status, and reports like antigen-wise coverage, etc.

It will help in generating **real-time data on immunization status**, vaccination coverage etc. The beneficiaries will receive digital certificate of immunization status which can be downloaded and stored in digi-lockers. The digital data can be utilized for **healthcare system surveillance** and help in planning and **deployment of timely and effective interventions**.

31. Global Initiative on Digital Health (GIDH)

It consists of network of organisations, institutions and government technical agencies engaged in **supporting national digital health transformation**. It is **managed by the WHO**. Its objectives include to assess and prioritise needs for **sustainable digital health transformation** and to match digital health resources and unfunded priorities. It was launched in 2023 during **India's G20 Presidency** (at Health Ministers' meeting). GIDH was made part of **New Delhi Declaration** as well.

32. Chandipura Virus

Multiple children have died due to suspected infection by Chandipura Virus (CHPV). CHPV belongs to the Rhabdoviridae family, which includes the **virus-causing rabies**. It is transmitted by several species of **sandflies** (Phlebotomine sandflies, Phlebotomus papatasi) and **mosquitoes** (Aedes aegypti). The virus is **transmitted through bites** to humans and other vertebrates. The infection can reach the **central nervous system**, causing **encephalitis** (inflammation of brain tissues). The symptoms include acute fever, body aches, and headache. It may lead to **altered sensorium**, **seizures**, and **encephalitis**. Additional Symptoms include **respiratory distress**, bleeding tendencies, and anaemia. It can lead to mortality within 24-48 hours of hospitalization. It primarily affects children below 15 years. There is **no specific antiretroviral therapy** or **vaccine available**. Rapid progression makes symptom management challenging.

33. African Swine Fever (ASF)

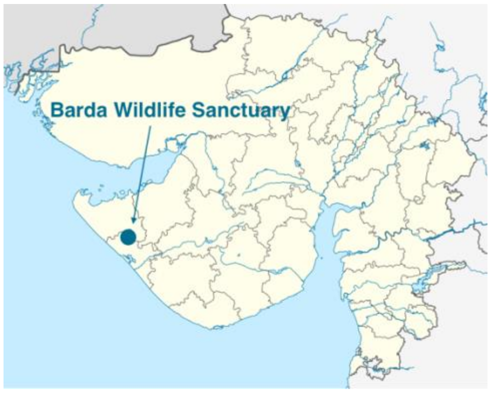
Outbreak of ASF in Mizoram has led to deaths of over 3,350 pigs since February 2024. ASF Virus is a large, enveloped, **double-stranded DNA virus**. The clinical symptoms of ASF can closely resemble those of classical swine fever. It is a highly contagious and the mortality rate that can reach 100%. The ASF virus is capable of surviving for extended periods in pork and pork meat products. **ASF does not pose a danger to human health**. Consuming meat or other products from pigs does not present any food safety risks for humans.

34. Leopard Safari in Bannerghatta Biological Park

India's largest leopard safari has been inaugurated in Bannerghatta Biological Park (BBBP), near Bengaluru. Following Central Zoo Authority guidelines, a **20-hectare area** has been fenced for the safari, and **8 leopards have been released into this open forest area**. Bannerghatta is known for its healthy population of free-ranging leopards, making this safari an important addition. The park often receives **rescued leopard cubs** due to increasing **human-animal conflicts**.

The Biological Park was carved out of the **Bannerghatta National Park** (BNP) and placed under the **Zoo Authority of Karnataka** (ZAK). BNP was declared a national park in 1974. BBBP consists of four divisions: Zoo, Safari, Butterfly Park, and the Rescue enter. The park also encompasses the valley of the Champakadhama hills.

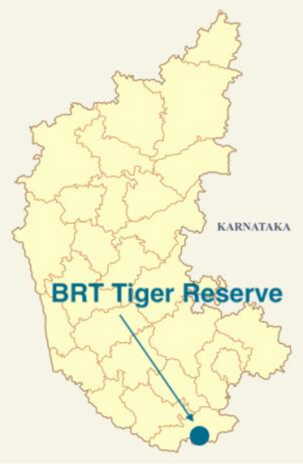
35. Barda Wildlife Sanctuary



It is located in Gujarat. It lies ~15 kilometers from Porbandar and 100 kilometers west of **Gir Forest National Park**. In 1979, the State Government started the '**Gir-Barda Project**' to make **Barda a second home for Asiatic lions**. Two rivers Bileshvary and Joghri flow nearby. There are also two dams, Khambala and Fodara. Different ethnic groups such as Maldharis, Bharvads, Rabaris, and Gadhvis live in this area. The sanctuary has about **650 types of plants** like Rayan, Babul, Ber, Jamun, Amli, Gorad, Bamboo, Dhav, and Dhudhlo. Leopards, Hyenas, Wild boars, Wolves, Jackals, and Blue bulls are found in this sanctuary. There are also rare and endangered birds such as the spotted eagle and the crested hawk eagle.

The Forest Department in Gujarat has begun **translocating spotted deer and sambars** from Gir Forest to the Barda Wildlife Sanctuary to boost the **long-term conservation of Asiatic lions**.

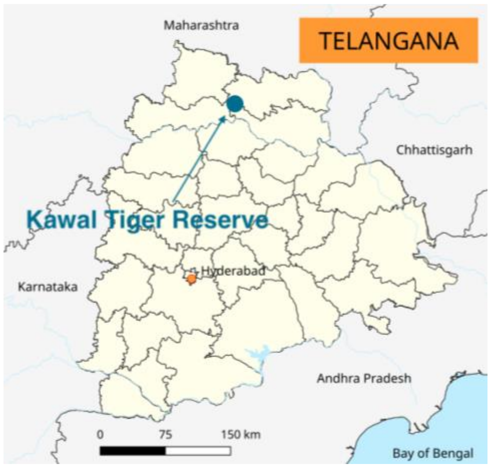
36. Biligiri Rangaswamy Temple (BRT) Tiger Reserve



It is located in the **Chamarajanagar district** of Karnataka. It is named after Biligiri, a rocky cliff that has a temple of *Lord Vishnu*, locally known as **Rangaswamy**. The BRT Wildlife Sanctuary was declared a **Tiger Reserve in 2011**. It was established as a Wildlife Sanctuary in 1974. The forests are mainly of the **dry deciduous type**. They are interspersed with moist **deciduous**, **semi-evergreen**, **evergreen**, and **shola** patches at varying altitudes. Major floral species include Anogeissus latifolia, Dalbergia paniculata, Grewia teliaefolia, Terminalia alata, Terminalia bellirica, and Terminalia paniculata. The Tiger Reserve is home to a variety of animals including tigers, elephants, leopards, wild dogs, bisons, sambars, spotted deer, barking deer, four-horned antelopes, sloth bears, wild boars, common langurs, bonnet macaques, and various reptiles and birds.

37. Kawal Tiger Reserve

It is located in the **Northeastern part of Telangana** (Old Adilabad district). It is bordered by the **Godavari River** on one side and the **Maharashtra border** on the other. It is Part of the **Deccan peninsula-central highlands**. It has connectivity to **Tadoba-Andhari Tiger Reserve** (Maharashtra) in the north and **Indravati Tiger Reserve** (Chhattisgarh) towards the north-eastern side. Its principal flora include **teak and bamboo. 673 plant species** have been recorded here, including Anogeissus latifolia, Mitragyna parviflora, Terminalia crenulata, Terminalia arjuna, Boswellia serrata, etc. Major wild animals are nilgai, chousinga, chinkara, black buck, sambar, spotted deer, wild dog, wolf, jackal, fox, tiger, leopard, and jungle cat.



38. Rhisotope Project

It has been started by **South Africa**. Its objective is to **protect rhinos by making their horns detectable at international borders** and **rendering them useless for human consumption**. Initially, 20 live rhinos have been made part of the pilot project. A small hole is drilled in the horn. **Two tiny radioactive chips** are placed in the horn, making it detectable at border posts. The radioactive material makes the horn useless and essentially poisonous for human consumption. **Dehorning and poisoning the horns have failed to stop poachers**. Radioactive material lasts 5 years in the horn. This method is more cost-effective than dehorning every 18 months.

39. Nightjars

Nightjars are **medium-sized**, **nocturnal**, **insectivorous birds** belonging to the family Caprimulgidae. They are among the most difficult bird species to study due to their unobtrusive and **nocturnal behavior**, as well as their cryptic plumage. They feed on flying insects, catching them on the wing at night. Their grey-brown, mottled, streaked, and stripey plumage provides **excellent camouflage during the daytime**. During the day, they sleep on the ground or perch lengthwise on a branch. **Nightjars are found worldwide**, except in Antarctica and certain island groups such as the Seychelles.

40. Himalayan Serow

Himalayan serow has been seen for the first time in the **Nameri National Park** and **Tiger Reserve**. They are found at high altitudes between **2,000-4,000 m**. They are known to be found in the eastern, central, and western Himalayas but not in the Trans Himalayan region. It is a **medium-sized mammal** with a large head, thick neck, short limbs, long, mule-like ears, and a coat of dark hair. It is a very elusive animal. It is a herbivore. Their **IUCN** Status is

Vulnerable, and they have been classified under **Appendix I** of **CITES** and **Schedule I** of **the Wildlife Protection Act**, **1972**.

41. Mainland Serow

The mainland serow has been recorded at the lowest elevation in western Assam. It is a **mammal** that looks like a **cross between a goat and an antelope**. The mainland serow inhabits areas at altitudes between 200-3,000 m. It is native to the Himalayas, Southeast Asia and China. Bhutan is the natural home and habitat of mainland serow. It is **territorial by nature** and **lives alone or in small groups**. Females give birth to a single young after a gestation period of about 8 months. Its **IUCN Status** is **Vulnerable** and it has been classified under **Appendix I** of **CITES**.

42. Ostrich Nest Found in Andhra Pradesh

Archaeologists have discovered a 41,000-year-old ostrich nest in **Prakasam**, Andhra Pradesh. The discovery in Andhra proves the **presence of ostriches in southern India** 41,000 years ago. It also adds to the growing body of research **examining why megafauna went extinct in India**. Earlier **evidence of presence of ostrich in India** were found in **1884** (upper Shiwalik Hills area, now in Pakistan) and **1989** (40,000-50,000 years old eggshell beads in Patne, Maharashtra).

In 2017, researchers had assessed the ages of a batch of fossilised egg shells from **Rajasthan**, **Madhya Pradesh** and **Gujarat**, and established the presence of ostriches 25,000 years ago. The researchers attributed their presence in India to **bio-geographical dispersion** resulting from the **continental drifting of Gondwanaland**.

43. Blue Planet Prize

The Blue Planet Prize recognises **outstanding efforts in scientific research** or applications of science that **contribute to solving global environmental problems**. The prize was created by the **Asahi Glass Foundation** (linked to Japanese Asahi Glass company) in 1992. Since then the foundation has awarded the prize to **two winners every year**. This year the prize was awarded to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) along with Prof. Robert Costanza.

44. Jagannath Temple

The Jagannath Temple is dedicated to the god Jagannath, a form of Lord Vishnu in Hinduism. It is located in Puri, Odisha. As per temple records, **King Indradyumna** of **Avanti** built the main temple of Jagannath at Puri. The temple is famous for its **annual *Rath Yatra***, in which the three principal deities are pulled on huge and elaborately decorated raths, or temple cars. Unlike the stone and metal icons found in most Hindu temples, the **image of Jagannath is made of wood**, and is ceremoniously replaced every 12 or 19 years by an exact replica. The temple is especially sacred to **Vaishnava traditions**. Many great Vaishnava saints, such as Ramanujacharya, Madhvacharya, Nimbarkacharya, Vallabhacharya and Ramananda were closely associated with the temple.

The Jagannath Puri Temple ***Ratna Bhandar*** consists of two chambers: *Bahar Bhandar* (outer chamber) and *Bhitar Bhandar* (inner chamber). These chambers contain the jewels of the three sibling deities: ***Lord Balabhadra***, ***Lord Jagannath***, and ***Devi Subhadra***.

45. Moidams

Moidams (Maidams) are **mound-burial systems** used by the **Ahom dynasty** (13th-19th century). **Charaideo** was the first capital of the Ahom dynasty which is located over **400 km east of Guwahati**. It was founded by Chao Lung Siu-Ka-Pha in 1253. Moidams are found in Northern Vietnam, Laos, Thailand, Northern Burma, Southern China, and Northeast India, indicating the spread of **Tai-Ahom culture**. They are comparable to the royal tombs of ancient China and the pyramids of the Egyptian Pharaohs.

The **International Council on Monuments and Sites** (ICOMOS) has recommended the inclusion of the 'Moidams' in Assam's Charaideo district to the **UNESCO World Heritage List**.

46. International Council on Monuments and Sites

It is an **international non-governmental organization** established in 1965 in Warsaw, Poland. Its establishment was based on the Venice Charter of 1964. It provides **advice to UNESCO** on **World Heritage Sites**. It is dedicated to conserving and enhancing architectural and landscape heritage at the global level.

The **Venice Charter for the Conservation and Restoration of Monuments and Sites** is a set of guidelines, drawn up in 1964 by a group of conservation professionals in Venice, that provides an **international framework** for the **conservation and restoration of historic buildings**.

47. Dodol Sweet

The All-Goa Baker's and Confectioners Association has applied for a GI Tag for sweet Dodol. Dodol is a **traditional Goan sweet treat** which is dark brown and made from **rice flour**, **coconut milk**, and **black palm jaggery**. It has a firm, jelly-like texture.

It is traditionally made by Christian families during Christmas for '**consoada**', a tradition of sending sweets to relatives and neighbours. Some believe Dodol was served at **royal banquets** in the Medang Kingdom of Indonesia between the 8th-11th centuries. Dodol is thought to have been introduced to Goa during **Portuguese rule in the 17th century**.

Dodol and its variations are also enjoyed in southern India, Sri Lanka, Indonesia, Thailand, Malaysia, and parts of Southeast Asia.

48. Araku Coffee

It is grown in **Araku valley** in **Alluri district** in **Andhra Pradesh**. The valley is located in Eastern Ghats. The coffee has a distinct flavour with subtle taste of chocolate and caramel. For its unique taste and qualities, it was awarded **GI tag in 2019**. It is primarily grown by tribal farmers and cooperatives.

India is among top 8 coffee producers in the world. Brazil, Vietnam, Indonesia, Columbia, Ethiopia, Uganda, Peru were among the top producers in 2022.

49. Order of St. Andrew the Apostle

The Prime Minister of India has received **Russia's highest civilian honour**, the Order of Saint Andrew the Apostle. The award was announced in 2019 for his exceptional services in **promoting the strategic partnership and friendly relations between Russia and India**.

It is **Russia's highest civilian award** given for exceptional services to the Russian Federation. It is awarded to prominent Government and public figures; Military leaders and outstanding representatives in science, culture, art, and various sectors of the economy or Heads of foreign States for outstanding services to Russia.

It is named after **Saint Andrew**, one of the **apostles of Jesus Christ**. Saint Andrew is believed to have travelled to Russia, Greece, and other parts of Europe and Asia, spreading the message of Jesus and founding **the Church of Constantinople**. The **Russian Orthodox Church** with more than 90 million followers in Russia traces its roots back to Saint Andrew.

The Order was established by **Tsar Peter the Great** in **1698**. It was **abolished in 1918** following the Russian Revolution and was later **re-established in 1998** by an Executive Order of the President of Russia.

50. Juneteenth

Juneteenth is a short name for "June Nineteenth". It is a **holiday commemorating the end of slavery** in the US. It marks the day on June 19, 1865, when the Civil War in the US ended and the **emancipation of enslaved African Americans was announced**. Although President Abraham Lincoln's **Emancipation Proclamation** had legally freed slaves in **Confederate States** on January 1, 1863, enforcement had been slow in some regions, particularly in Texas.

Juneteenth is celebrated with various activities such as parades, cultural events, educational workshops, and family gatherings.

51. Project ASMITA

The project ASMITA (Augmenting Study Materials in Indian Languages through Translation and Academic Writing) has been launched by the Ministry of Education and the University Grants Commission (UGC) to **develop 22,000 books in Indian languages** in the next 5 years. It is a collaborative effort of the UGC and the **Bharatiya Bhasha Samiti**. The Project ASMITA aims to create a **robust ecosystem for translation and original book writing** in **Indian languages** across various disciplines within **higher education**. Bhartiya Bhasha Samiti is a high-powered committee under the Ministry, to **promote Indian languages in education**.

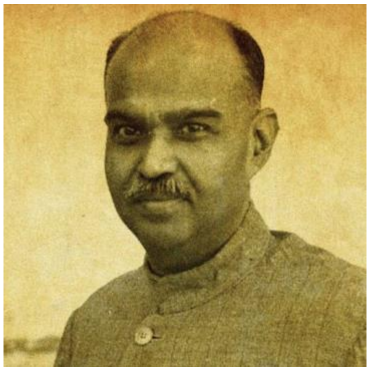
52. Hansa Mehta

The President of UN General Assembly honoured Hansa Mehta on the occasion of International Day for Women in Diplomacy. The UNGA President highlighted her pivotal role in **shaping the Universal Declaration of Human Rights** (UDHR) to be **more inclusive**. Hansa Mehta had successfully argued for replacing "All **men** are born free and equal" to "All **human beings** are born free and equal" in **Article 1 of the Universal Declaration of Human Rights**. The introduction of more inclusive language is considered an important milestone in the fight for **gender equality** and **women's rights**.

She was the only other female delegate, apart from **Eleanor Roosevelt** (Wife of US President Franklin Roosevelt) to the **United Nations Commission on Human Rights**.

Hansa Mehta was a prominent scholar, educator, social reformer and writer. She was born on July 3, 1897. As the President of **All India Women's Conference** (AIWC) in 1946, she led the **drafting of the** "**Indian Women's Charter of Rights**", which demanded gender equality, civil rights and justice for women in India. She was also **part of the Constituent Assembly** that drafted the Indian Constitution, a member of its Advisory Committee and **sub-Committee on Fundamental Rights**.

53. Shyama Prasad Mukherjee



Shyama Prasad Mukherjee was born in a Bengali family on July 06, 1901 in Calcutta. He was a politician, barrister, and academician who served as the **Minister for Industry and Supply** (August 1947 to April 1950) in Prime Minister **Jawaharlal Nehru's** cabinet.

He started '***Bang Wani***', a Bengali journal (1922) and **the Nationalist**.

He became the **youngest vice-chancellor of Calcutta University in 1934**. He was the founder of **Bharatiya Jana Sangh (BJS)** in 1951. He died in mysterious circumstances during detention in 1953 while protesting against the **special status given to Jammu and Kashmir**.

54. Resolution for Renaming Kerala to Keralam

The Kerala Assembly has passed a resolution asking the Centre to rename the State as Keralam.

Under Article 3 of the Constitution, the Parliament can alter the name of a State. Kerala is the English word for the Malyali word ***Keralam***. The earliest mention of the word can be found in **Emperor Ashoka's Rock Edict II** of 257 BCE which mentions "***Keralaputra***". ***Keralaputra*** in Sanskrit literally means '**son of Kerala**' which refers to the dynasty of the **Cheras,** one of the three main kingdoms of southern India along with Cholas and Pandyas.

The demand for a united Malayalam-speaking State was raised in the 1920s. After Independence, the State of **Travancore-Cochin** was formed by integrating the **Princely States of Travancore and Cochin**. The State of Kerala came into existence in 1956 with reorganisation on linguistic basis.

55. Import of Items under Tariff Rate Quota

The Government has allowed limited imports of corn, crude sunflower oil, refined rapeseed oil and milk powder under the Tariff-Rate Quota. A **tariff-rate quota** (TRQ) (also called a **tariff quota**) is a **two-tiered tariff system** that combines **import quotas** and **tariffs** to **regulate import products**.

It allows a **lower tariff rate on imports** of a given product **within a specified quantity** and requires a **higher tariff rate** on imports **exceeding that quantity** e.g., a country might allow the imports of 50,000 cars at a tariff rate of 10%. However, any car imported above this quantity would be subject to a higher tariff rate say 40%.

56. Committee to Update Base Year

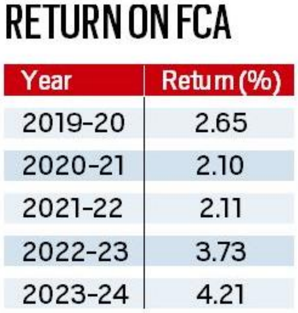
The Ministry of Statistics and Programme Implementation (MoSPI) has established a 26-member committee to oversee the **revision of the base year for national accounts**. The initiative aims to **enhance the accuracy of economic analysis** and **policy formulation** by reviewing existing databases and incorporating new data sources. Regularly updating the base year is essential to ensure that **indices accurately reflect changes in the economy's structure**, such as shifts in **consumption patterns**, **sector weights**, and the **incorporation of new sectors**.

At present, key economic measures like the **Index of Industrial Production** (IIP), **Wholesale Price Index** (WPI), and **National Income** are anchored to FY2011-12. Prior to that, they were benchmarked to FY2004-05. The Consumer Price Index (CPI) uses 2012 as its base year.

57. Financial Inclusion Index

It captures the extent of financial inclusion across India and is **released by the RBI**. The index value has risen to 64.2 in March 2024, up from 60.1 in March 2023. The value of 0 represents complete financial exclusion and **100 indicates full financial inclusion**. The FI-Index comprises of **3 broad parameters**: **Access** (35%), **Usage** (45%), and **Quality** (20%) with each of these consisting of various dimensions, which are computed based on **97 indicators**. Improvement in FI-Index has mainly been contributed by **usage dimension**, reflecting deepening of financial inclusion. The Index captures details of banking, investments, insurance, postal as well as the pension sector.

58. India's Foreign Currency Assets (FCA)



RETURN ON FCA

Year	Return (%)
2019-20	2.65
2020-21	2.10
2021-22	2.11
2022-23	3.73
2023-24	4.21

The **return on India's Foreign Currency Assets** (FCA) has **risen to 4.21% in March 2024** from 2.11% in March 2022. This is due to **rise in interest rates in the US** and other developed countries. This has resulted in the RBI earning over **US$ 19 billion in interest income** for the FY2023-24. As of March 31, 2024, the total value of securities in FCA was US$ 468.98 billion.

India's Foreign Exchange Reserves comprise **Foreign Currency Assets**, **Gold**, **SDR's** and **Reserve Bank position** with IMF.

FCAs include **investments in US Treasury Bonds**, Bonds/Treasury Bills of other selected Governments, deposits with Foreign Central Banks and Foreign Commercial Banks *etc*.

Out of FCA of US$ 570.95 billion, US$ 468.98 billion was invested in **securities**; US$ 62.17 billion was deposited with **Central Banks** and the **BIS**; US$ 39.79 billion comprised **deposits with commercial banks overseas**.

A small portion of the reserves is managed by **external asset managers** to explore new strategies and **diversify the portfolio**. These investments are governed by the **RBI Act, 1934**.

59. RBI's Gold Deposits

In 2023-24, the RBI reduced **gold held abroad** by ~50 tonnes, bringing the total to **387.26 metric tonnes**. RBI reduced its gold holding due to high cost of keeping gold abroad. As of March 2024, **the RBI held 822.10 metric tonnes of gold** (408.31 metric tonnes domestically, 26.53 metric tonnes gold deposits).

60. SEBI Guidelines for Financial Influencers

SEBI has asked the brokers and mutual funds to stop using the services of **unregulated financial influencers** for **marketing and advertising campaigns**.

India has **154 million trading accounts**; rising ~327% from 36 million accounts in April 2019.

According to the guidelines, it will be the **responsibility of the regulated entity** to **ensure individuals** with whom it is associated **do not breach the rules of conduct set by SEBI**. These guidelines stipulate **avoiding the promise of assured returns**.

Financial influencers engaged in investor education will be exempted from the new restrictions.

61. Securities Appellate Tribunal (SAT)

The Chief Justice of India has said that more Securities Appellate Tribunal (SAT) benches are required in view of 'rapid growth' in market and 'increased volume of financial transactions'.

SAT is a **statutory body** established under the **SEBI Act**, **1992**. It is empowered to **hear appeals** against the orders passed by **SEBI**, **Insurance Regulatory and Development Authority of India** (IRDAI) and **Pension Fund Regulatory and Development Authority** (PFRDA).

62. National Financial Reporting Authority (NFRA)

It is an independent regulator set up to **oversee the auditing profession** and the Indian Accounting Standards under the **Companies Act 2013**. It was constituted in October 2018. Its functions include to recommend **accounting and auditing policies** and **standards to be adopted by companies** for approval by the Central Government; **monitor and enforce compliance** with accounting standards and auditing standards; **oversee the quality of service of the professions** associated with ensuring compliance with such standards and suggest measures for improvement in the quality of service.

It **protects the public interest** and the **interests of investors**, **creditors** and others associated with the companies.

63. National Bank for Financing Infrastructure and Development (NaBFID)

The Government intends to **increase the capital base** of the **National Bank for Financing Infrastructure and Development** to INR 1 trillion through support from banks. It was set up in 2021 under the **National Bank for Financing Infrastructure and Development Act**, **2021**. It is a **Development Finance Institution** which focuses on **long-term infrastructure financing**. It is **regulated and supervised by the RBI** as an **All-India Financial Institution** (AIFI). Its purpose is to **provide specialized financing** for **infrastructure development** in India. Its goal is to **address gaps in long-term finance for infrastructure**, strengthening the development of bonds and derivatives markets in India and boosting the country's economy sustainably.

64. National Database for Emergency Management

It is a **geo-portal** designed to **disseminate crucial space-based information** and **services** related to **natural disasters** across **India** and **neighboring countries**. The database provides comprehensive geospatial data essential for **addressing emergency situations**. NDEM serves as a **centralized repository** for space-based inputs, aimed at enhancing disaster management and **reducing risks associated with natural calamities**. NDEM plays a crucial role in establishing an **early warning system**, helping to **mitigate the impact** of natural disasters and **safeguarding citizens** from unpredictable natural events.

65. Bhuvan Panchayat Portal

The geoportal is an advanced online platform developed by the **National Remote Sensing Centre** (NRSC), under the ISRO.

This portal serves as a **comprehensive WebGIS** (Web Geographic Information System) and is designed to support '**Space-based Information Support for Decentralized Planning**' (SISDP) and **empower citizens at the grassroots level** in Panchayats across India.

It provides **high-resolution satellite imagery** at a scale of 1:10K, enabling visualization and planning for **infrastructure development**, **land use**, and **disaster risk reduction**.

By **digitalizing rural land records** and improving land revenue management, Bhuvan Panchayat aims to **reduce corruption**, **enhance transparency**, and **promote ease of living** by giving citizens direct access to real-time data.

66. National Centre for Good Governance (NCGG)

It is an **apex-level autonomous institution** under the **Ministry of Personnel**, **Public Grievances** and **Pensions**. It was set by the Government of India in 2014.

The Centre traces its origin to the **National Institute of Administrative Research** (NIAR), which was set up in 1995 by the **Lal Bahadur Shastri National Academy of Administration** (LBSNAA). NIAR was subsequently rechristened and subsumed into NCGG. It objective is to function as a **national repository** on information on **best practices**, initiatives and methodologies that **promote Good Governance**, e-Governance etc. and to **advise on key issues in governance** and develop synergy across various Ministries/ Departments of GoI, and State Governments.

Its mandate includes **governance**, **policy reforms**, **capacity building**, and **training for civil servants** and technocrats in India and other developing nations. It also **serves as a think tank**.

The affairs of the NCGG are managed under the overall superintendence and direction of the **Governing Body**, which is headed by the **Cabinet Secretary**.

67. Travel Authority TA-912

TA-912 is a type of **paper authority** issued by **railway authorities** to **loco pilots** in situations when there is a **signal failure**. This document **authorizes the loco pilots to proceed past a red signal**, which would otherwise indicate that the train must stop. The primary purpose of TA-912 is to manage train movements during signal failures, ensuring that **trains can continue to operate even when the signalling system is not functioning correctly**. This helps to avoid significant delays and congestion in the railway network.

TA-912 is issued by the stationmaster or an equivalent authority. Following the tragic train crash involving a goods train and the Kanchanjunga Express in West Bengal, **Eastern Railway has decided to suspend the issuance of TA-912**. The suspension aims to prevent further accidents under similar circumstances. *(Refer EPIC June 2023 for The Issue of Railways Safety in India)*.

68. India's Indigenous Defence Production

India's indigenous defense production has reached a record level of **INR 126,887 crore in 2023-24**. The value of production in 2022-23 was INR 108,684 crore. In 2023-24, **~80% of the domestic production** was contributed by the **public sector** (Defence PSUs) while ~20% was by the private sector. The growth rate of domestic production has been ~60% over the last 5 years (since 2019-20). **Defence exports** too have reached a record high of **INR 21,083 crore** (from INR 15, 920 crore in 2022-23).

The increase in domestic production and exports has been possible to policy reforms, initiatives and measures targeted towards enhancing ease of doing business. *(Refer EPIC December 2022 for India's Defence Manufacturing Sector)*.

69. Coalition of Epidemic Preparedness Innovations (CEPI)

It was launched in 2017. It was founded by the **Governments of India** and **Norway**, **Bill & Melinda Gates Foundation**, **Wellcome Trust** and **World Economic Forum**. It is a partnership between public, private, philanthropic, and civil organizations. Its mission is to **accelerate the development of vaccines** and other biological countermeasures **against epidemic** and **pandemic threats**, making them accessible to everyone in need. It has supported the development of **over 50 vaccine candidates** or platform technologies. One of its key initiative, the '100 Days Mission', aims to **reduce the time to develop safe**, **effective**, and **globally accessible vaccines to just 100 days**.

The Department of Biotechnology under the Ministry of Science and Technology supports the Ind-CEPI Mission.

70. ULLAS

Ladakh has achieved Full Functional Literacy under the ULLAS – *Nav Bharat Saaksharta Karyakram*, after having **achieved more than 97% literacy.**

ULLAS - *Nav Bharat Saaksharta Karyakram* (New India Literacy Programme (NILP)) is a **centrally sponsored scheme** being implemented from 2022-2027. It aims to empower those **adults aged 15 years and above** from all backgrounds **who could not get due schooling**; and mainstream them with society to be able to contribute more to the growth story of India.

The scheme consists of **5 components**: **Foundational Literacy and Numeracy**, **Critical Life Skills**, **Basic Education**, **Vocational Skills**, and **Continuing Education**. The vision of the ULLAS Scheme is to make Bharat - *Jan Jan Saakshar*. It is being implemented on **volunteerism**. The scheme has benefitted more than 77 Lakhs people across the country till now. The **ULLAS Mobile App** has more than **1.29 Crore learners** and **35 lakh volunteer teachers**.

71. Types of Climate Adaptation Measures

Grey Actions: Grey adaptation typically involves **technical or engineering oriented responses** to climate impacts e.g., construction of sea walls in response to sea level rise.

Green Actions: Green adaptation actions seek to **use nature-based solutions to enhance the resilience of human and natural systems** e.g., efforts to reinstate dune systems to act as buffers against coastal storm damage, or the creation of green spaces and parks to counteract urban heat island effect.

Soft Actions: Soft adaptation actions involve **alterations in behaviour**, regulation or systems of management like the land-use planning policy. India's Mission LiFE is based on soft action approach.

NOTE: *With effect from 1st February 2022, the monthly ForumIAS Epic Magazine, for the month will provide wholistic coverage for the said month up to 20th of the month. This ensures that issues / stories that occur after 21st of the month are allowed to fully develop and are covered wholistically in the next month.*

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