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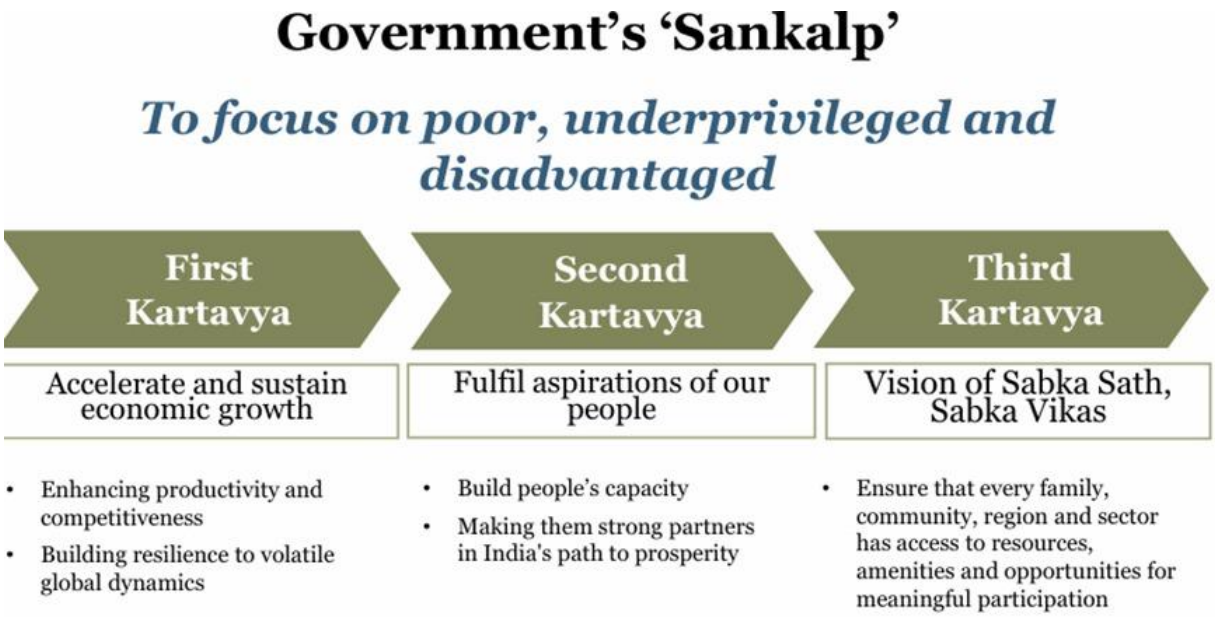
EDITORIAL INDEX

HIGHLIGHTS OF UNION BUDGET 2026-27

PART-A

- Union Minister for Finance and Corporate Affairs, Smt. Nirmala Sitharaman tabled the Union Budget 2026-27 in the parliament on Feb 1. The highlights of the budget are as follows:

- The first Budget prepared in **Kartavya Bhawan**, is inspired by **3 kartavyas**:
- **First kartavya** is to accelerate and **sustain economic growth**, by enhancing productivity and competitiveness, and **building resilience** to volatile global dynamics.
- **Second kartavya** is to fulfil aspirations of people and **build their capacity**, making them strong partners in India's path to prosperity
- **Third kartavya**, aligned with vision of **Sabka Sath, Sabka Vikas**, is to ensure that every family, community, region and sector has access to resources, amenities and opportunities for meaningful participation.

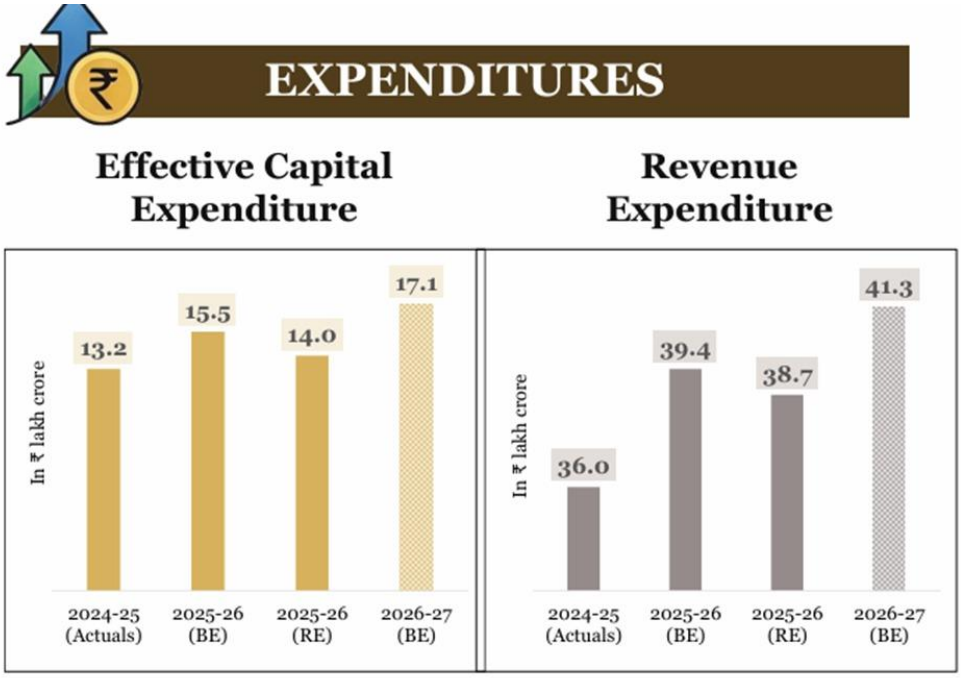


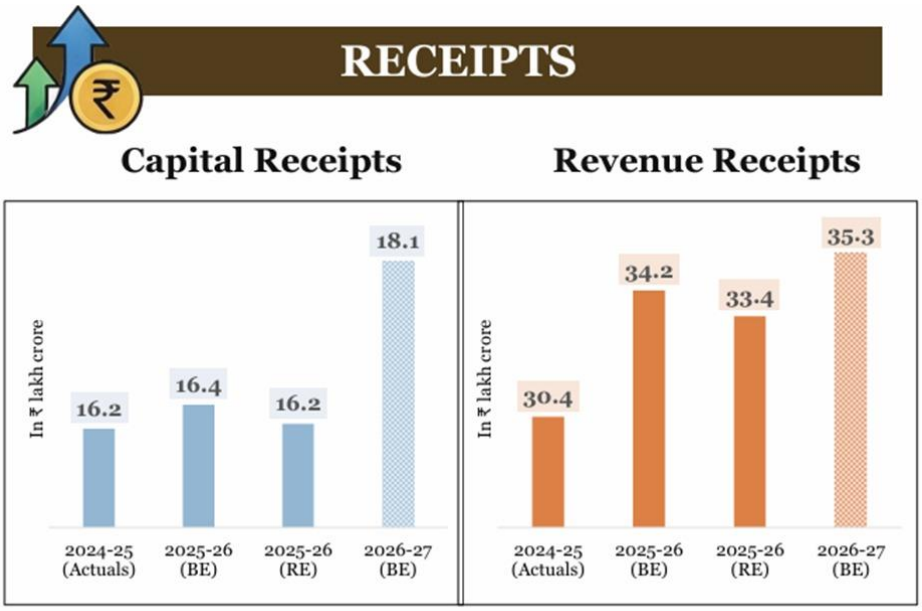
Budget Estimates

- The **non-debt receipts** and the total expenditure are estimated as **₹36.5 lakh crore** and ₹53.5 lakh crore respectively. The Centre's net tax receipts are estimated at ₹28.7 lakh crore.

- The **gross market borrowings** are estimated at **₹17.2 lakh crore** and the net market borrowings from dated securities are estimated at ₹11.7 lakh crore.
- The Revised Estimates of the non-debt receipts are ₹34 lakh crore of which the Centre's net tax receipts are ₹26.7 lakh crore.
- The Revised Estimate of the **total expenditure is ₹49.6 lakh crore**, of which the capital expenditure is about ₹11 lakh crore.
- The **fiscal deficit in BE 2026-27** is estimated to be **4.3 percent of GDP.**
- In RE 2025-26, the fiscal deficit has been estimated at par with BE of 2025-26 at 4.4 percent of GDP.
- The **debt-to-GDP ratio** is estimated to be **55.6 percent of GDP** in BE 2026-27, compared to **56.1 percent of GDP** in RE 2025-26.

In ₹ crore	2024-25 (Actuals)	2025-26 (Budget Estimates)	2025-26 (Revised Estimates)	2026-27 (Budget Estimates)
Revenue Receipts	3,03,6619	34,20,409	33,42,323	35,33,150
Capital Receipts	16,16,249	16,44,936	16,22,519	18,14,165
Total Receipts	46,52,867	50,65,345	49,64,842	53,47,315
Total Expenditure	46,52,867	50,65,345	49,64,842	53,47,315
Effective Capital Expenditure	13,24,609	15,48,282	14,03,906	17,14,523
Revenue Deficit	5,64,296	5,23,846	5,26,764	5,92,344
Effective Revenue Deficit	2,91,640	96,654	21,8,613	99,642
Fiscal Deficit	15,74,431	15,68,936	15,58,492	16,95,768
Primary Deficit	4,58,856	2,92,598	28,4154	2,91,796





<u>First Kartavya is to accelerate and sustain economic growth and proposes 6 interventions</u>

Scaling up manufacturing in 7 strategic and frontier sectors

(i) Biopharma SHAKTI

- **Biopharma SHAKTI** (Strategy for Healthcare Advancement through Knowledge, Technology and Innovation) announced, with an outlay of ₹ 10,000 crores over the next 5 years to develop India as

a **global Biopharma manufacturing hub.**

- A Biopharma-focused network to be created with 3 new **National Institutes of Pharmaceutical Education and Research (NIPER)** and upgrading 7 existing ones.
- A network of over 1000 accredited India Clinical Trials sites to be created

(ii) India Semiconductor Mission (ISM) 2.0

- **India Semiconductor Mission (ISM) 2.0** to be launched to produce equipment and materials, design **full-stack Indian IP**, and **fortify supply chains** with focus on industry led research and training centres to develop technology and skilled workforce.

(iii) The **Electronics Components Manufacturing Scheme** outlay increased to ₹40,000 crore.

(iv) Dedicated Rare Earth Corridors

- **Dedicated Rare Earth Corridors** to be established, to support the mineral-rich States of Odisha, Kerala, Andhra Pradesh and Tamil Nadu to promote mining, processing, research and manufacturing.

(v) **Chemical Parks**

- Government to launch a Scheme to support States in establishing **3 dedicated Chemical Parks,** through challenge route, on a cluster-based plug-and-play model.

(vi) Strengthening Capital Goods Capability

- Hi-Tech Tool Rooms to be established by CPSEs at 2 locations as digitally enabled automated service bureaus that locally design, test, and manufacture high-precision components at scale and at lower cost.
- A Scheme for Enhancement of Construction and Infrastructure Equipment **(CIE)** to be introduced, to strengthen domestic manufacturing of high-value and technologically-advanced CIE.
- A Scheme for **Container Manufacturing announced**, to create a globally competitive container manufacturing ecosystem, with a budgetary allocation of over ₹10,000 crore over a 5 year period.

(vii) Integrated Programme for the Textile Sector announced

- The **National Fibre Scheme** for self-reliance in natural fibres such as silk, wool and jute, man-made fibres, and new-age fibres.
- **Textile Expansion and Employment Scheme** to modernize traditional clusters with capital

support for machinery, technology upgradation and common testing and certification centres.

- **Mega Textile Parks** to be setup in challenge mode with focus on bringing value addition to technical textiles.
- **Mahatma Gandhi Gram Swaraj** initiative announced, to strengthen khadi, handloom and handicrafts.
- Initiative to help in global market linkage, branding and will streamline and support training, skilling, quality of process and production.

Rejuvenating legacy industrial sectors

- A Scheme to revive 200 legacy industrial clusters announced, to improve their cost competitiveness and efficiency through infrastructure and technology upgradation.

Creating "Champion SMEs" and supporting micro enterprises

- A dedicated ₹10,000 crore **SME Growth Fund**, to be introduced, to create future Champions, incentivizing enterprises based on select criteria.
- **Self-Reliant India Fund** to be allocated with additional ₹2,000 crore, to continue support to micro enterprises and maintain their access to risk capital.
- Government to facilitate Professional Institutions such as **ICAI, ICSI, ICMAI** to design short-term, modular courses and practical tools to develop **a cadre of 'Corporate Mitras',** especially in Tier-II and Tier-III towns.

Delivering a powerful push to Infrastructure

- **Public capital expenditure** to be increased to ₹12.2 lakh crore in FY 2026-27.
- Government to set up an **Infrastructure Risk Guarantee Fund** to strengthen the confidence of private developers regarding risks during infrastructure development and construction phase.
- Government to accelerate recycling of significant real estate assets of CPSEs through the setting up of dedicated **REITs.**

To promote environmentally sustainable movement of cargo, following measures are proposed:

(a) New Dedicated Freight Corridors to be established connecting **Dankuni** in the East, to **Surat** in the West

(b) 20 new National Waterways (NW) to be operationalised over next 5 years, starting with **NW-5 in Odisha** to connect **mineral rich areas of Talcher and Angul** and industrial centres like Kalinga Nagar to the **Ports of Paradeep and Dhamra.**

- Training Institutes to be set up as Regional Centres of Excellence for development of the required manpower.
- Further, a ship repair ecosystem catering to inland waterways to be set up at Varanasi and Patna

(c) A **Coastal Cargo Promotion Scheme** to be launched for incentivising a modal shift from rail and road, to increase the share of inland waterways and coastal shipping from **6% to 12 % by 2047**.

- Incentives to be provided to indigenize manufacturing of seaplanes and enhance last-mile and remote connectivity, and promote tourism.
- **Seaplane VGF Scheme** to be introduced to provide support for operations.

Ensuring long term energy security and stability

- An outlay of ₹20,000 crore over the next 5 years, announced for Carbon Capture Utilization and Storage (CCUS) technologies.

Developing City Economic Regions

- An allocation of ₹5000 crore over 5 years, per city economic regions (CER) announced, for implementing their plans through a challenge mode with a reform-cum-results based financing mechanism.
- Government to develop Seven High-Speed Rail corridors between cities as 'growth connectors' to promote environmentally sustainable passenger systems. These include:

i. Mumbai-Pune
ii. Pune-Hyderabad,
iii. Hyderabad-Bengaluru,
iv. Hyderabad-Chennai
v. Chennai-Bengaluru,
vi. Delhi-Varanasi,
vii. Varanasi-Siliguri.

- Government to setup a "High Level Committee on Banking for Viksit Bharat", to comprehensively review the sector and align it with India's next phase of growth, while safeguarding financial stability, inclusion and consumer protection.
- Government to restructure the **Power Finance Corporation** and Rural Electrification Corporation to achieve scale and improve efficiency in the Public Sector NBFCs.
- A comprehensive review of the Foreign Exchange Management (Non-debt Instruments) Rules is

proposed, to create a more contemporary, user-friendly framework for foreign investments, consistent with India's evolving economic priorities.

7. Municipal Bonds

- An incentive of ₹100 crore for a single bond issuance of more than ₹1000 crore announced, to encourage the issuance of municipal bonds of higher value by large cities.

Second Kartavya is to fulfil aspirations and build capacity of people

- Government to set up a High-Powered 'Education to Employment and Enterprise' Standing Committee to recommend measures that focus on the Services Sector as a core driver of Viksit Bharat.

Creation of Professionals for Viksit Bharat

- Existing institutions for Allied Health Professionals (AHPs) to be upgraded and new AHP Institutions to be established in private and Government sectors
- 100,000 Allied Health Professionals to be added over the next 5 years
- Five Regional Medical Hubs to be established, to promote India as a hub for medical tourism services.

AYUSH

- 3 new All India Institutes of Ayurveda to be established

Animal Husbandry

- Government to scale up availability of veterinary professionals by more than 20,000
- A loan-linked capital subsidy support scheme to be launched for establishment of veterinary and para vet colleges, veterinary hospitals, diagnostic laboratories and breeding facilities in the private sector.

Orange Economy

- Indian Institute of Creative Technologies, Mumbai to be provided support in setting up , Visual Effects, Gaming and Comics (AVGC) Content Creator Labs in 15,000 secondary schools and 500 colleges.

Education

- 5 University Townships to be created in the vicinity of major industrial and logistic corridors through challenge route.
- Through VGF/capital support, 1 girls' hostel to be established in every district

Tourism

- National Council for Hotel Management and Catering Technology to be upgraded to National Institute of Hospitality
- A pilot scheme for upskilling 10,000 guides in 20 tourist sites announced through a standardized, high-quality 12-week training course in hybrid mode In collaboration with an IIM.
- A National Destination Digital Knowledge Grid to be established to digitally document all places of significance—cultural, spiritual andheritage.

Heritage and Culture Tourism

- 15 archeological sites including Lothal, Dholavira, Rakhigarhi, Adichanallur, Sarnath, Hastinapur, and Leh Palace to be developed into vibrant, experiential cultural destinations

Sports

- Khelo India Mission to be launched to transform the Sports sector over the next decade.

Third Kartavya is aligned with vision of Sabka Sath, Sabka Vikas and requires targeted efforts in the following four areas:

Increasing Farmer Incomes

- New Initiatives to be undertaken for
- Integrated development of 500 reservoirs and **Amrit Sarovars**

(a) High Value Agriculture:

- Govt. to support high value crops such as :
- coconut, sandalwood, cocoa and cashew in coastal areas
- **Coconut Promotion Scheme** to be launched to increase production and enhance productivity.

(b) Bharat-VISTAAR (Virtually Integrated System to Access Agricultural Resources)

- Government to launch Bharat-VISTAAR, a multilingual AI tool to integrate the **AgriStack portals** and the ICAR package on agricultural practices with AI systems.

Empowering Divyangjan

- Divyangjan Kaushal Yojana for Divyangjans to offer task-oriented and **process-driven roles in IT**, AVGC sectors, Hospitality and Food and Beverages sectors.

Commitment to Mental Health and Trauma Care

- Government to set up **NIMHANS-2** in north India.
- Government to upgrade National Mental Health Institutes in Ranchi and Tezpur as Regional Apex Institutions.

Focus on the Purvodaya States and the North-Eastern Region

- Government to develop an integrated East Coast Industrial Corridor with a well-connected node at Durgapur, creation of 5 tourism destinations in the 5 Purvodaya States, and the provision of 4,000 e-buses.
- A scheme to be launched for the development of **Buddhist Circuits in Arunachal Pradesh, Sikkim, Assam, Manipur, Mizoram and Tripura.**

16th Finance Commission

- Government provided ₹1.4 lakh crore to the States for the FY 2026-27 as Finance Commission Grants as recommended by the 16th Finance Commission.

PART –B

Direct Taxes

New Income Tax Act

- New Income tax Act ,2025 to come into effect from April 2026
- The simplified Income Tax Rules and Forms will be notified shortly. The forms redesigned for easy compliance of ordinary citizens.

Ease of Living

- Interest awarded by the Motor Accident Claims Tribunal to a natural person will be exempt from Income Tax, and any TDS on this account will be done away with.
- **TCS Rationalization**
- Reduce TCS rate on sale of overseas tour program package to 2 % (from current 2-20%).
- Reduce the TCS rate to 2% (from current 5%) for LRS remittances for education and medical.
- Simplified TDS provisions for manpower supply will benefit labour intensive business.
- Scheme for small taxpayers wherein a rule based automated process for obtaining Lower or nil deduction certificate instead of filing application with the assessor.
- Single window filing with depositories for **Form 15G or 15 H for TDS on dividends, interests etc**
- Extend time available for revising returns from 31st December to upto 31st March with payment

of nominal fees

- The timeline for filing of tax returns to be staggered.
- **TAN** for property transactions involving NRIs will be replaced with **resident buyers PAN** based challan.
- A one time 6 month foreign asset disclosure scheme for small taxpayers to disclose their overseas income or asset.

Rationalizing Penalty and Prosecution

- IT assessment & penalty proceedings are proposed to be integrated by way of common order for both.
- Taxpayers allowed to update their returns even after reassessment proceedings have been initiated to reduce litigations, at an additional 10 percent tax rate over and above the rate applicable for the relevant year.
- Penalty for misreporting of income also eligible for immunity with payment of additional income tax.
- Prosecution framework under the Income Tax Act to be rationalized.
- Non-production of books of account and documents, and requirement of TDS payment, where payment is made in kind, to be decriminalised.
- Non-disclosure of non-immovable foreign assets with aggregate value less than 20 lakh rupees to be provided with immunity from prosecution with retrospective effect from 1.10.2024.

Cooperatives

- Extend deduction already allowed to a primary cooperative society engaged in supplying milk, oilseeds, fruits or vegetables raised or grown by its members to those supplying cattle feed and cotton seed also.
- Allow the inter-cooperative society dividend income as deduction under the new tax regime to the extent it is further distributed to its members.
- Exemption for a period of 3 years allowed to dividend income received by a notified national cooperative federation, on their investments made in companies up to 31.1.2026, for dividends further distributed to its member co-operatives.

Supporting IT sector as India's growth engine

- Software development services, IT enabled services, knowledge process outsourcing services and contract R&D services relating to software development to be clubbed under a single category of

Information Technology Services with a common safe harbour margin of 15.5 percent.

- The threshold for availing safe harbour for IT services to be enhanced from 300 crore rupees to 2,000 crore rupees.
- Safe harbour for IT services shall be approved by an automated rule-driven process, can be continued for a period of 5 years at a stretch.
- Unilateral **Advanced Pricing Agreement (APA)** process for IT services to be fast-tracked with the endeavour to conclude it within a period of 2 years, which can be extended by 6 months on taxpayer's request.
- The facility of modified returns available to the entity entering APA to be extended to its associated entities.

Attracting global business and investment

- Any foreign company that provides cloud services to customers globally by using data centre services from India to be provided Tax holiday till 2047
- A safe harbour of 15 percent on cost to be provided if the company providing data centre services from India is a related entity.
- A safe harbour to non-residents for component warehousing in a bonded warehouse at a profit margin of 2 percent of the invoice value. The resultant tax of about 0.7 percent will be much lower than in competing jurisdictions.
- Exemption from income tax for 5 years to be provided to any non-resident who provides capital goods, equipment or tooling, to any toll manufacturer in a bonded zone.
- Exemption to global (non-India sourced) income of a non-resident expert, for a stay period of 5 years under notified schemes
- Exemption from **Minimum Alternate Tax (MAT)** to all non-residents who pay tax on presumptive basis.

Tax administration

- A Joint Committee of Ministry of Corporate Affairs and Central Board of Direct Taxes to be constituted for incorporating the requirements of Income Computation and Disclosure Standards (ICDS) in the Indian Accounting Standards (IndAS) itself. Separate accounting requirement based on ICDS will be done away with from the tax year 2027-28.
- Definition of accountant for the purposes of Safe Harbour Rules to be rationalized.

Other Tax proposals

- In the interest of minority shareholders, **buyback for all types of shareholders to be taxed as Capital Gains.** Promoters to pay an additional buyback tax, making effective tax 22 percent for corporate promoters and 30 percent for non-corporate promoters.
- TCS rate for sellers of specific goods namely alcoholic liquor, scrap and minerals will be rationalized to 2 percent and that on **tendu leaves** will be reduced from 5 percent to 2 percent.
- **STT on Futures** to be **raised to 0.05 percent** from **present 0.02 percent**. STT on **options premium** and exercise of options to be raised to 0.15 percent from the present rate of 0.1 percent and 0.125 percent respectively.
- To encourage companies to shift to the new regime, set-off of brought forward MAT credit to be allowed to companies only in the new regime. Set-off using available MAT credit to be allowed to an extent of 1/4th of the tax liability in the new regime.
- MAT is proposed to be made final tax. There will be no further credit accumulation from 1st April 2026. The rate of final tax to be reduced to 14 percent from the current MAT rate of 15 percent. The brought forward MAT credit of taxpayers accumulated till 31st March 2026, will continue to be available to them for set-off as above.

Indirect taxes:

Tariff Simplification

Marine, leather, and textile products:

- The limit for duty-free imports of specified inputs used for processing seafood products for export, to increase from the current 1 per cent to 3 per cent of the FOB value.
- The duty-free imports of specified inputs, which is currently available for exports of leather or synthetic footwear to be allowed.

Energy transition and security:

- The basic customs duty exemption given to capital goods used for manufacturing **Lithium-Ion Cells** for batteries to be extended.
- The basic customs duty on import of **sodium antimonate** for use in manufacture of **solar glass** to be exempted.

Nuclear Power:

- The existing basic customs duty exemption on imports of goods required for Nuclear Power Projects to be extended till the year 2035.

Critical Minerals:

- The basic customs duty to the import of capital goods required for processing of critical minerals to be exempted.

Biogas blended CNG:

- The entire value of biogas while calculating the Central Excise duty payable on biogas blended CNG to be excluded.

Civil and Defence Aviation:

- The basic customs duty on components and parts required for the manufacture of civilian, training and other aircrafts to be exempted.
- The basic custom duty on raw materials imported for manufacture of parts of aircraft to be used in maintenance, repair, or overhaul requirements by Units in the Defence sector to be exempted.

Electronics:

- The basic customs duty on specified parts used in the manufacture of microwave ovens to be exempted.

Special Economic Zone:

- A special one-time measure, to facilitate sales by eligible manufacturing units in SEZs to the Domestic Tariff Area (DTA) at concessional rates of duty is proposed. The quantity of such sales will be limited to a prescribed proportion of their exports.

Ease of Living:

- The tariff rate on all dutiable goods imported for personal use to be reduced from 20 per cent to 10 per cent.
- The basic customs duty on 17 drugs/ medicines is to be exempted.
- Duty free personal import of drugs/ medicines and food for 7 more rare diseases.

Customs Process simplification

- Custom processes to have minimal intervention for smoother and faster movement of goods.

Trust-based systems

- Duty deferral period for Tier 2 and Tier 3 Authorised Economic Operators, known as AEOs, to be enhanced from 15 days to 30 days. Same is extended to the eligible manufacturer-importers
- Validity period of advance ruling, binding on Customs, to be extended from the present 3 years to 5 years.
- Government agencies will be encouraged to leverage AEO accreditation for preferential treatment in clearing their cargo.
- Filing of bill of entry by a trusted importer, and arrival of goods will automatically notify Customs for completing their clearance formalities (for import of goods not needing any compliance).
- The Customs warehousing framework to be transformed into a warehouse operator-centric system with self-declarations, electronic tracking and risk-based audit.

Ease of Doing Business

- Cargo clearance approvals from various Government agencies to be seamlessly processed through a single and interconnected digital window by the end of the financial year.
- Processes involved in clearance of food, drugs, plant, animal & wild life products, accounting for around 70 percent of interdicted cargo, to be operationalised on this system by April 2026 itself.
- For goods not having any compliance requirement, clearance to be done by Customs immediately after online registration is completed by the importer.
- **Customs Integrated System (CIS)** to be rolled out in 2 years as a single, integrated and scalable platform for all the customs processes.
- Utilization of non-intrusive scanning with advanced imaging and AI technology for risk assessment to be expanded in a phased manner with the objective to scan every container across all the major ports.

New export opportunities

- Fish catch by an Indian fishing vessel in Exclusive Economic Zone (EEZ) or on the High Seas to be made **free of duty**, Landing of such fish on foreign port will be treated as export of goods.
- Complete removal of the current value cap of ₹10 lakh per consignment on courier exports- supports aspirations of India's small businesses, artisans and start-ups to access global markets through e-commerce

Ease of Living

- Provisions governing baggage clearance to be revised during international travel. Revised rules to enhance duty-free allowances in line with the present day travel realities.

- Honest taxpayers, willing to settle disputes will be able close cases by paying an additional amount in lieu of penalty.

Wetlands as a National Public Good

- India celebrated World Wetlands Day with the theme Wetlands and traditional knowledge, notably adding two new Ramsar sites—**Patna Bird Sanctuary (UP)** and **Chhari-Dhand (Gujarat)**—bringing the national total to 98.

Wetlands: What it is?

- Wetlands are land areas saturated or flooded with water, either permanently or seasonally. They act as national public goods because they provide essential services—like flood control and water purification—that benefit the entire community and cannot be easily restricted to private owners.

Key Characteristics of Wetlands:

- **Hydrology:** Presence of water at or near the soil surface for at least part of the year.
- **Hydric Soils:** Soils developed under anaerobic (low oxygen) conditions due to prolonged saturation.
- **Hydrophytes:** Specialized vegetation, such as mangroves or reeds, adapted to grow in water-logged soil.
- **Ecotone Status:** They serve as transition zones (buffer areas) between dry land and deep-water aquatic systems.

Status of Wetlands in India:

- **Ramsar Network:** India now has 98 Ramsar sites (as of Feb 2026), the highest in South Asia.
- **Geographical Spread:** Wetlands cover approximately 5% of India's land area (around 15.9 million hectares).
- **Rate of Loss:** India has lost nearly 40% of its natural wetlands over the last three decades due to urbanization.
- **Leading State:** Tamil Nadu holds the highest number of Ramsar sites (20) in the country.

Importance of Wetlands as a Public Good:

- **Flood Mitigation:** They act as natural sponges, absorbing excess monsoon runoff.
- E.g. Deepor Beel (Assam) absorbs nearly 40% of the Brahmaputra's overflow, protecting Guwahati

from devastating floods.

- **Water Purification:** Wetlands filter out nitrogen, phosphorus, and heavy metals.
- E.g. The East Kolkata Wetlands naturally treat 750 million liters of sewage daily, saving the city crores in treatment costs.

- **Climate Resilience:** They store massive amounts of carbon and act as bio-shields.
- E.g. During Cyclone Dana (2024), the Bhitarkanika Mangroves (Odisha) reduced wind speeds, shielding inland villages from damage.

- **Livelihood Security:** Millions depend on wetlands for fishing, agriculture, and fodder.
- E.g. The Kuttanad (Kerala) wetland system supports below-sea-level farming, producing over 6 lakh tonnes of rice annually.

- **Biodiversity Hotspots:** They support 40% of the world's species, including rare migratory birds.
- E.g. Chhari-Dhand (Gujarat) serves as a critical breeding ground for the endangered Desert Fox and thousands of Flamingos.

Threats and Challenges:

- **Urban Encroachment:** Rapid real estate growth often involves filling wetlands for construction.
- E.g. Pallikaranai Marsh (Chennai) has shrunk significantly due to high-rise townships and infrastructure projects.

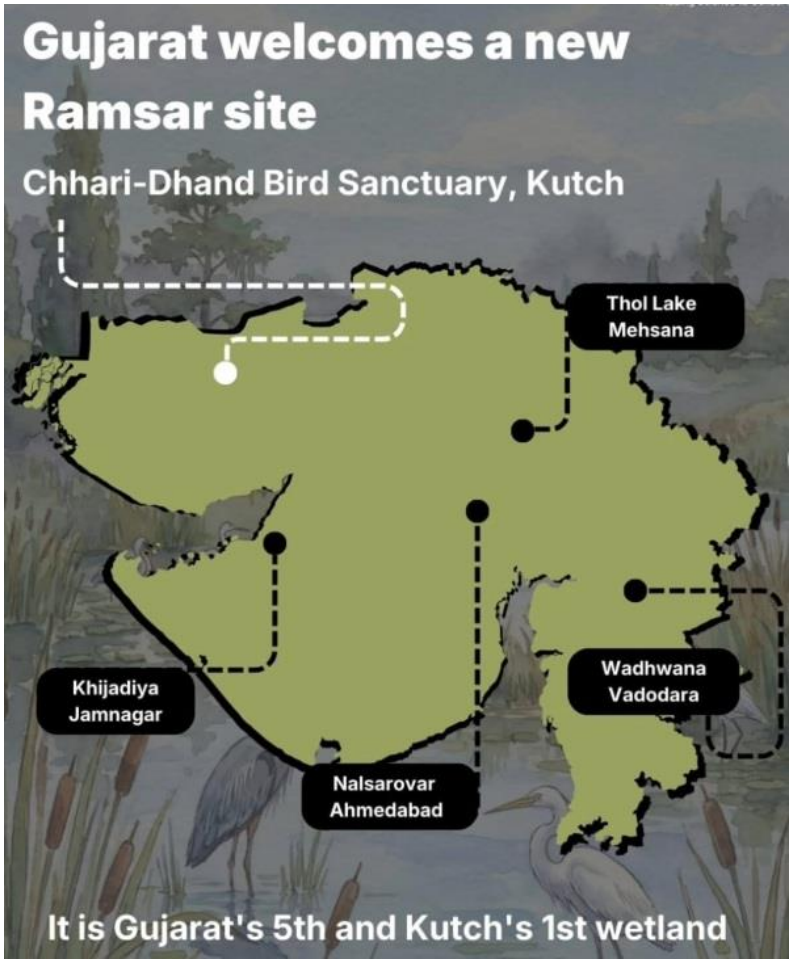
- **Pollution and Dumping:** Wetlands are frequently treated as wastelands for solid waste and sewage.
- E.g. Ashtamudi Lake (Kerala) saw mass fish kills in late 2025 due to industrial effluents and organic waste dumping.

- **Hydrological Disruption:** Dams and sand mining block the natural flow of water into these basins.
- E.g. Harike Wetland (Punjab) has seen its area reduced as nearly 60% of its surroundings were converted to paddy fields.

- **Invasive Species:** Non-native plants choke native biodiversity and reduce water capacity.

- E.g. Water Hyacinth covers nearly 40% of Loktak Lake (Manipur), severely impacting fish yields and local navigation.

- **Climate Change:** Rising sea levels and salinity threaten coastal and high-altitude systems.
- E.g. Sundarbans (West Bengal) is losing mangrove cover due to increasing salinity and frequent high-intensity cyclones.



List of Ramsar sites Declared in past 2 years:

	Declared Year 2025	Declared Year 2024	Year 2026
1.	Gokul Jalashay – Bihar	Nagi Bird Sanctuary	Chhari-Dhand –

		– Bihar	Gujarat
2.	Udaipur Jheel – Bihar	Nakti bird Sanctuary – Bihar	Patna Bird Sanctuary – UP
3.	Gogabil Lake – Bihar	Ankasamudra Bird Conservation Reserve – Karnataka	
4.	Kopra Jalashay – (1st in) Chattisgarh	Aghanashini Estuary – Karnataka	
5.	Menar Wetland Complex – Rajasthan	Magadi Kere Conservation Reserve – Karnataka	
6.	Khichan wetland – Rajasthan	Tawa Reservoir – Madhyapradesh	
7.	Siliserh Lake – Rajasthan	Karaivetti Bird Sanctuary – Tamilnadu	
8.	Khachoedpalri wetland - Sikkim	Longwood Shola Reserve Forest – Tamilnadu	
9.	Sakkarakottai Bird Sanctuary – Tamilnadu	Kazhuveli Bird Sanctuary – Tamilnadu	
10.	Therthangal Bird Sanctuary – Tamilnadu	Nanjarayan Bird Sanctuary – Tamilnadu	

Way Forward:

- **Notification and Demarcation:** Legally notify all wetland boundaries and make maps public to prevent illegal land conversion.
- **Watershed-Scale Governance:** Shift from isolated projects to managing wetlands as part of a whole river basin or catchment area.
- **Capacity Building:** Launch a national mission to train managers in GIS, hydrology, and community-led restoration.
- **Mainstreaming Traditional Knowledge:** Incorporate ancient practices, like the Kenis of Wayanad, into modern water management plans.
- **Nature-Based Infrastructure:** Integrate wetlands into Smart City planning as flood buffers rather than choosing grey concrete solutions.

Conclusion:

- Wetlands are not just scenic spots but the biological kidneys of our nation. By moving from beautification to ecological functionality, India can ensure its water security and climate resilience. The future of our cities and villages depends on treating these vibrant ecosystems as a shared heritage rather than disposable land.

Summary of the 16th Finance Commission

- Finance Minister Nirmala Sitharaman tabled the 16th Finance Commission (FC) report in Parliament on February 1, 2026, alongside the Union Budget. The government has accepted its key recommendation to maintain the states' share in central taxes at 41% for the period of 2026-31.

Vertical Devolution: Share of States in Central Taxes

- **Key Recommendation:** The states' share in the divisible pool of central taxes remains unchanged at 41%, consistent with the 15th Finance Commission.
- **Divisible Pool:** Calculated after excluding cesses, surcharges, and the cost of collection from the Centre's gross tax revenue.
- **Impact:** Ensures stability in resource transfer to states, maintaining the foundational framework of fiscal federalism.
- **Horizontal Devolution:** New Criteria for Distribution Among States

- The formula for distributing the states' share has been recalibrated with revised weights and a new parameter.

Devolution Criteria – 15th FC vs. 16th FC

Criteria	15th FC Weight	16th FC Weight	Key Change
Income Distance	45%	42.5%	Slight reduction.
Population (2011)	15%	17.5%	Increased weight.
Demographic Performance	12.5%	10%	Redefined (uses pop. growth 1971-2011).
Area	15%	10%	Reduced weight.
Forest & Ecology	10%	10%	Now includes open forests & growth in forest cover.
Tax Effort	2.5%	0%	Dropped entirely.
Contribution to GDP	0%	10%	New parameter rewarding economic size.
Total	100%	100%	

Key Changes:

- **Income Distance**: Based on per capita GSDP gap with top-3 states (avg. of 2018-19 & 2023-24, excluding 2020-21).
- **Contribution to GDP:** New 10% weight to reward states for their economic output, calculated using the square root of GSDP.
- **Forest & Ecology:** Now more comprehensive, considering increase in forest area (2015-23) and

including open forests.

- **Demographic Performance:** Shift from Total Fertility Rate (TFR) to population growth between 1971-2011.

1. Grants-in-Aid to States & Local Bodies (Total: ₹9.47 Lakh Crore)

- The Commission has streamlined grants, discontinuing revenue deficit, sector-specific, and state-specific grants.
- Local Body Grants (₹7,91,493 crore)
- Rural Local Bodies: ₹4.35 lakh crore.
- Urban Local Bodies: ₹3.56 lakh crore.
- Structure:80% Basic Grant (50% tied to water/sanitation) + 20% Performance Grant.

New Components for Urban Bodies:

- **Special Infrastructure Grant (₹56,100 cr):** For wastewater management in cities (10-40 lakh population).
- **Urbanisation Premium (₹10,000 cr):** One-time grant for merging peri-urban areas and formulating rural-urban transition policies.
- **Conditionality:** Tied to timely State Finance Commissions, audited accounts, and proper constitution of local bodies.

Table 2: Grants-in-aid for 2026-31 (in Rs crore)

Grants	Amount
Local governments	**7,91,493**
Rural local bodies	***4,35,236***
Basic Grant	*3,48,188*
Performance Grant	*87,048*
Urban local bodies	***3,56,257***
Basic Grant	*2,32,125*
Performance Grant	*58,032*
Special Infrastructure Component	*56,100*
Urbanisation Premium	*10,000*
Disaster management	**1,55,916**
Total	**9,47,409**

Source: Report of the 16th Finance Commission; PRS.

Table 3: Individual share of states in the taxes devolved by the centre (out of 100)

State	14th FC (2015-2020)	15th FC (2021-26)	16th FC (2026-31)
Andhra Pradesh	4.31	4.05	4.22
Arunachal Pradesh	1.37	1.76	1.35
Assam	3.31	3.13	3.26
Bihar	9.67	10.06	9.95
Chhattisgarh	3.08	3.41	3.30
Goa	0.38	0.39	0.37
Gujarat	3.08	3.48	3.76
Haryana	1.08	1.09	1.36
Himachal Pradesh	0.71	0.83	0.91
Jammu and Kashmir	1.85	-	-
Jharkhand	3.14	3.31	3.36
Karnataka	4.71	3.65	4.13
Kerala	2.5	1.93	2.38
Madhya Pradesh	7.55	7.85	7.35
Maharashtra	5.52	6.32	6.44
Manipur	0.62	0.72	0.63
Meghalaya	0.64	0.77	0.63
Mizoram	0.46	0.5	0.56
Nagaland	0.5	0.57	0.48
Odisha	4.64	4.53	4.42
Punjab	1.58	1.81	2.00
Rajasthan	5.5	6.03	5.93
Sikkim	0.37	0.39	0.34
Tamil Nadu	4.02	4.08	4.10
Telangana	2.44	2.1	2.17
Tripura	0.64	0.71	0.64
Uttar Pradesh	17.96	17.94	17.62
Uttarakhand	1.05	1.12	1.14
West Bengal	7.32	7.52	7.22

Sources: Reports of the 14th, 15th, and 16th Finance Commission Reports; PRS.

2. Disaster Management Grants (₹1,55,916 crore)

- Corpus for State Disaster Relief & Management Funds (SDRF/SDMF).
- **Centre-State Cost Sharing:**
- 90:10 for Northeastern & Himalayan states.
- 75:25 for all other states.

Other Major Recommendations

Fiscal Roadmap & Debt Management:

- **Centre's Fiscal Deficit:** Reduce to 3.5% of GDP by 2030-31.
- **State's Fiscal Deficit:** Cap at 3% of
- **Off-Budget Borrowings:** Strictly discontinue. All such borrowings must be brought on-budget; debt definition to be expanded uniformly.
- **Combined Debt:** Projected to decline from 77.3% (2026-27) to 73.1% of GDP (2030-31).

Power Sector Reforms:

- Actively pursue privatisation of **DISCOMs** (distribution companies).
- Create a **Special Purpose Vehicle (SPV)** to warehouse existing DISCOM debt.
- **Link Central Assistance:** States can use funds from the Special Assistance Scheme for Capital Investment only after privatisation is complete.

Subsidy Rationalisation

- Review and rationalise subsidy expenditure.
- Set clear exclusion criteria for better targeting, move away from unconditional cash transfers.
- Discontinue financing subsidies via off-budget borrowings.
- Adopt uniform accounting and disclosure standards for subsidies/transfers across states.

Public Sector Enterprise Reforms

- Review & close 308 inactive State PSEs (SPSEs).
- Formulate a state-level disinvestment policy for underperforming PSEs.
- Loss-making PSEs (losses in 3 out of 4 years) must be placed before the Cabinet for a decision on closure, privatisation, or strategic continuation.

Draft IT (Digital Code) Rules, 2026: Key Provisions & Concerns

- The Ministry of Information and Broadcasting proposed the Draft IT (Digital Code) Rules, 2026, to regulate online obscenity and classify digital content.

About Draft IT Rules, 2026: Legal and Constitutional Basis

- **Legal Basis:** The draft rules are proposed under Section 87(1) of the Information Technology Act, 2000.
- **Constitutional Balance:** The framework follows Supreme Court directives to balance the freedom of speech under Article 19(1)(a) with the reasonable restrictions under Article 19(2).
- **Broadcast Alignment**: The draft draws heavily on the Cable Television Networks Rules, 1994, and extends similar content standards to digital platforms.

Key Provisions of the Draft Rules

- **Age Classification:** The draft proposes a five-tier classification system for online content, comprising U (Universal), U/A 7+, U/A 13+, U/A 16+, and A (Adult).
- **Mandatory Labels:** Platforms must clearly display age ratings and content warnings regarding violence or nudity before each programme begins.
- **Professional Content:** Exemptions apply to content meant exclusively for professional audiences, medical, scientific, or academic users.
- **Content Restrictions:** Digital platforms are barred from hosting material that attacks religions, promotes communal disharmony, or glorifies violence, crime, or substance abuse.
- **Parental Safeguards:** Platforms must provide parental controls for 13+ content and verified access systems for adult-only material.
- **Intermediary Liability:** Non-compliance with obscenity laws attracts civil consequences for Online Curated Content Providers (OCCPs).
- **Obscenity Definition:** Content is considered obscene if it is lascivious, prurient, corrupting to viewers' minds, or offensive to good taste or decency.

Arguments in Favour of the Digital Content Age-Based Classification System

- **Child Protection:** Age-based classification and parental locks help shield minors from explicit content, similar to safeguards used in TV broadcasting and global OTT platforms like Netflix.
- **Informed Choice:** Mandatory content labels and warnings empower viewers to make informed decisions, improving transparency in digital consumption.

- **Constitutional Compliance:** By aligning with **Article 19(2)** restrictions, the rules operationalise Supreme Court guidance on regulating obscenity without imposing blanket censorship. E.g., the **Aveek Sarkar case.**
- **Platform Accountability:** Intermediary liability incentivises platforms to proactively moderate harmful content, reducing the circulation of hate speech or the glorification of violence.

Arguments Against the Digital Content Age-Based Classification System

- **Digital Mismatch:** Applying Cable TV-era rules to OTT platforms ignores the on-demand, user-driven nature of digital content, unlike push-based television.
- **Vague Standards:** Subjective terms like "good taste" and "decency" risk arbitrary enforcement, as seen earlier with Section 66A before its striking down.
- **Chilling Effect:** Strict liability may push platforms to over-censor content, discouraging independent creators and socially relevant storytelling.
- **OTT Industry Impact:** Removing the distinction between OTT and television may undermine innovation and global competitiveness of India's digital content ecosystem.

Concerns Regarding the Draft Rules

- **Digital Fit:** Applying broadcast-era standards to on-demand platforms may conflict with the flexibility of digital content consumption.
- **Vagueness Risk:** Subjective terms like "decency" create uncertainty and raise concerns about selective or arbitrary enforcement.
- **Speech Impact:** Strict liability provisions could deter content creators, resulting in a chilling effect on free expression and creative freedom.
- **OTT Distinction:** Eliminating the distinction between push-based television and pull-based OTT content remains a key industry objection.

Way Forward

- **Context-Sensitive Regulation:** Develop OTT-specific norms recognising on-demand viewing autonomy rather than broadcast equivalence.
- **Clear Definitions:** Precisely define subjective terms like obscenity and decency to reduce regulatory uncertainty.
- **Co-Regulatory Model:** Strengthen self-regulation backed by light-touch government oversight, similar to global best practices.
- **Judicial Safeguards:** Ensure appeal mechanisms and proportionality tests to prevent excessive

curbs on free speech.

- **Digital Literacy:** Complement regulation with media literacy programmes to empower users and parents.
- As Justice Chandrachud noted, **"liberty survives in the ability to question".** India's Digital Code must therefore balance child safety with creative freedom. A future-ready, co-regulatory framework can protect users without muting innovation or democratic discourse

Increased Capital Spending for the Defence Sector

- The government announced a historic 15.2% hike in the total defence budget for FY2026-27, primarily to address tactical gaps exposed by the recent Operation Sindoor conflict.
- The allocation aims to strengthen India's "security-development-self-reliance" balance amid rising geopolitical tensions.

Increased Capital Spending for the Defence Sector:

- Capital spending (or capital outlay) is the portion of the budget dedicated to modernization and the acquisition of new assets such as advanced weapons, fighter jets, ships, and submarines.
- For FY2026-27, capital outlay has surged by 8% to reach ₹2,19,306 crore, marking a strategic pivot from manpower costs to technology-intensive capability building.

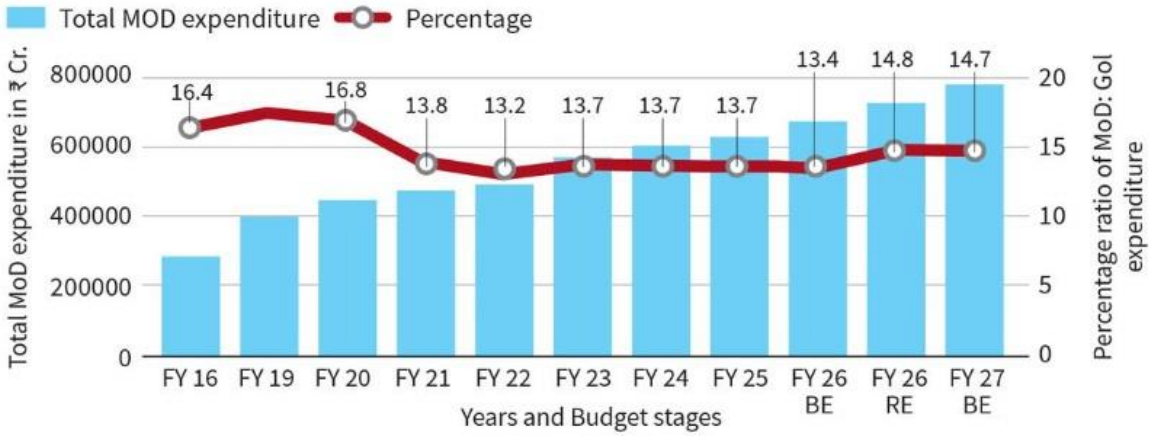
Important Budget Announcements:

- **Record Total Allocation:** A total of ₹7.85 lakh crore was granted to the Ministry of Defence, the highest among all ministries.
- **Modernization Surge:** Capital outlay for new acquisitions rose by nearly 22%, totaling ₹2.19 lakh crore.
- **Domestic Procurement Target:** 75% of the capital acquisition budget—amounting to ₹1.39 lakh crore—is reserved for domestic industry.
- **Border Infrastructure Hike:** Allocation for the Border Roads Organisation (BRO) increased to ₹7,394 crore for strategic tunnels and bridges.
- **R&D Expansion:** Budget for DRDO rose to ₹29,100 crore to foster indigenous innovation in next-gen technology.
- **Customs Duty Waivers:** Basic customs duty was waived on raw materials for aircraft manufacturing to boost the domestic MRO (Maintenance, Repair, and Overhaul) sector.

A significant increase

This is the first full Union Budget presented after Operation Sindoor, and the financial footprint of the conflict is likely reflected in the budget for defence. The four-day intense aerial engagement following the Pahalgam terror attack exposed the need for a stockpile of armament

CHART 1: Defence expenditure as a percentage of total government expenditure (in ₹ crore) across select years, and at various Budget stages



Need for Increasing the Defence Budget:

- **Replenishment of War Reserves:** Essential for replacing stocks depleted during active military engagements.
- E.g. High capital outlay is needed to replenish ammunition and precision-guided munitions used during Operation Sindoor in May 2025.

- **Countering Two-Front Threats:** Necessary to address simultaneous security challenges from adversarial neighbors.
- E.g. Modernizing air power and ground forces is critical to maintain deterrence along the Line of Actual Control (LAC) against China.

- **Maritime Security in IOR:** Strengthening undersea and surface capabilities to monitor the Indian Ocean Region (IOR).
- E.g. Funding supports the Project 75(I) stealth submarine deal to counter growing foreign naval presence in Indian waters.

- **Technological Superiority:** Investing in "sunrise" sectors like AI, cyber, and unmanned systems for future warfare.
- E.g. A 51% increase in the Agnipath scheme allocation reflects a push toward a leaner, tech-savvy force.

- **Border Connectivity:** Ensuring rapid troop mobilization through all-weather infrastructure in forward areas.
- E.g. Increased BRO funding will expedite strategic projects like high-altitude tunnels to ensure year-round connectivity to the borders.

Issues Associated with the Defence Sector:

- **Structural Imbalance:** High manpower costs (salaries/pensions) continue to eat into the modernization fund.
- E.g. Defence pensions alone cost **₹1.71 lakh crore in FY27**, nearly rivaling the entire capital acquisition budget.

- **Absorption Capacity:** Domestic industries often struggle to execute large-scale contracts within strict timelines.
- E.g. Fragmented planning and delayed trials have historically led to under-utilization of allocated capital funds.

- **Import Dependency:** Critical sub-systems and high-end tech like aero-engines are still largely imported.
- E.g. The IAF's 114 MRFA project remains dependent on foreign original equipment manufacturers

(OEMs) for combat jet designs.

- **Execution and Delivery Delays:** Long gestation periods for indigenous platforms can lead to operational gaps.
- E.g. The Project 75(I) submarine acquisition has faced years of delays, leaving the Navy with a shrinking underwater fleet.

- **Budget as % of GDP:** Despite absolute increases, spending remains below the recommended 2.5–3% of GDP.
- E.g. The FY27 budget stands at approximately 1.99% of GDP, which experts argue may be insufficient for a full-scale two-front threat.

Way Ahead:

- **Institutionalizing Emergency Procurement:** Transform fast-track mechanisms used during crises into standard procedures for critical tech.
- **Theaterisation and Jointness**: Surge funding for "Joint Staff" to enhance inter-service coordination and resource sharing.
- **Focus on IP-led Design:** Shift from transactional manufacturing to owning Intellectual Property (IP) for at least 50% of contracts.
- **Developing Export Hubs:** Leverage the domestic base to target ₹35,000 crore in annual exports by 2027 via modular designs.
- **Nurturing MSME Ecosystem:** Integrate hundreds of Indian MSMEs into the global supply chain for high-end spares and sensors.

Conclusion:

- The FY2026-27 defence budget acts as a stabilization measure that prioritizes immediate tactical readiness and long-term strategic autonomy. By earmarking 75% of acquisitions for domestic players, India is decisively moving toward becoming a self-reliant global defence hub. However, the success of this record outlay will depend on the industry's ability to deliver advanced technology at the speed of operational relevance.

The End of New START Treaty

- The formal expiration of the **New START Treaty** on February 5, 2026, marks a significant turning point in the history of global security. The end of the legal obligations that had limited nuclear weapons between the United States and Russia for the past five decades has raised the threat of a new nuclear race.

The Cold War and Early Arms Control Initiatives (1960-1970)

- In the late 1960s, when the Soviet Union equaled its intercontinental ballistic missile **(ICBM)** power with that of the United States, fears of global instability arose. To reduce this tension, the **Strategic Arms Limitation Talks (SALT)** were initiated.
- **SALT I (1969-1972):** This led to the **Anti-Ballistic Missile (ABM) Treaty**, which limited missile defense systems to prevent any country from acquiring a first-strike capability.
- **SALT II (1979):** This treaty capped the number of nuclear delivery vehicles (bombers and missiles) at 2,250. However, the US never ratified it due to the Soviet invasion of Afghanistan.

Post-Cold War Era: Reduction and Reduction (1991-2009)

- With the collapse of the Soviet Union, the focus shifted to "reduction," rather than simply limiting, the number of weapons.
- **START I (1991):** This was a landmark treaty that mandated a limit to 6,000 nuclear warheads and 1,600 missiles. It included strict on-site inspections. It expired in 2009.
- **START II (1993):** Its goal was to reduce the number of weapons to 3,500, but Russia also withdrew from the ABM Treaty in 2002 after the US withdrew from the treaty.
- **SORT (2002):** Seen as a "temporary bridge," it aimed to keep deployed warheads between 1,700 and 2,200.
- **New START: The Final Pillar of Nuclear Stability (2011-2026)**
- In 2010, President Obama (USA) and Dmitry Anatolyevich Medvedev (Russia) signed this treaty, which came into effect in 2011.

New START Treaty

- START stands for "Strategic Arms Reduction Treaty." The original START-I was signed between the US and USSR in 1991 and came into force in 1994.

- It was replaced by the **Strategic Offensive Reductions Treaty (SORT)** and later the **New START Treaty** (Signed in 2010, entered into force in 2011).
- **Extension and Suspension:** Though extended in 2021 till 2026, Russia suspended participation in 2023 amid the Ukraine war, leading both sides to halt inspections and data sharing.
- **Key Provisions:** It limits long-range weapons designed to influence the outcome of a war, targeting centers of power, command facilities, or critical infrastructure and ensures verifiable reductions in strategic arms.
- Russia and the US hold 87% of the world's nuclear warheads, enough for multiple global destructions.
- **Arms Limitations:** The treaty set verifiable limits for the US and Russia: 700 deployed ICBMs, SLBMs, and bombers, 1,550 nuclear warheads, and 800 deployed and non-deployed launchers and bombers.

Key Terms of the Treaty

- **Weapons Limitation:** Tactical nuclear warheads were limited to 1,550 and delivery systems to 800.
- **Strict Monitoring:** Ground inspections were conducted 18 times per year and continuous data sharing was provided to ensure compliance.
- **Extension:** In 2021, President Joe Biden extended it for five years, making it valid until February 5, 2026.

The Treaty's End: Future Challenges and Risks

- Now that the treaty has expired, the global security landscape is fraught with the following threats:
- **Uncontrolled Arsenals:** There are now no legal restrictions on the US (approximately 5,277 warheads) and Russia (approximately 5,449 warheads) from expanding their nuclear capabilities.
- **Lack of Transparency:** The cessation of regular inspections and data sharing will increase suspicion between the two countries, potentially escalating even minor disputes into major nuclear conflicts.
- **Setback to Nuclear Non-Proliferation:** The breakdown of the Treaty just before **the 2026 Nuclear Non-Proliferation Treaty (NPT) review** could provoke other countries to abandon restraint.
- **Strategic Competition:** There are now signs of an open and uncontrolled strategic rivalry emerging between Russia, the US, and China.

Global Initiatives Related to Nuclear Weapons Management

- **Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 1968:** Aims to prevent nuclear weapons spread, promote disarmament, and support peaceful nuclear energy use; recognizes five nuclear-weapon states (NWS): US, Russia, UK, France, China.
- **Comprehensive Nuclear-Test-Ban Treaty (CTBT), 1996:** Prohibits all nuclear explosions for testing purposes. (not yet entered into force).
- **Treaty on the Prohibition of Nuclear Weapons (TPNW), 2017:** Bans the use, possession, testing, and transfer of nuclear weapons under international law.

Conclusion

- Experts are clear in their warnings: without arms control, the world is more insecure than ever before. Although new agreements remain possible in the future, the current lack of mutual trust and lack of legal boundaries point to an uncertain nuclear age.

UPSC Prelims [PYQ 2011]

The "New START" treaty was in the news. What is this treaty?

(a) It is a bilateral strategic nuclear arms reduction treaty between the USA and the Russian Federation.

(b) It is multilateral energy security cooperation treaty among the members of the East Asia Summit.

(c) It is a treaty between the Russian Federation and the European Union for the energy security cooperation.

(d) It is a multilateral cooperation treaty among the BRICS counries for the promotion of trade

Infertility in India

- Infertility is emerging as a critical public health challenge in India in 2026, with experts increasingly highlighting that mental health is not just a consequence but a physiological driver of reproductive failure for all genders.

About Infertility in India:

- Infertility in India is defined as the inability of a couple to conceive after 12 months of regular, unprotected intercourse. While traditionally viewed as a woman's issue due to deep-seated patriarchal norms, contemporary data reveals a nearly equal split in male and female factor causes.
- In 2026, the conversation has shifted toward the silent crisis of male infertility and the biological impact of psychological stress on reproductive cells (gametes).

Key Trends and Data:

- **National Prevalence:** Approximately 15–20% of Indian couples (nearly 30 million) currently grapple with infertility, with rates significantly higher in urban centers.
- **Falling TFR:** India's Total Fertility Rate (TFR) has dipped to 1.9, well below the replacement level of 2.1, driven by both voluntary delays and involuntary infertility.
- **Male Factor Rise:** Men now account for nearly 40–50% of infertility cases, often linked to declining sperm quality due to environmental toxins and stress.
- **Urban-Rural Divide:** Urban areas report higher primary infertility (never conceived), while rural areas see higher secondary infertility, often due to untreated infections.
- **IVF Growth:** The Indian IVF market is projected to double from million in 2024 to billion by 2029, reflecting increased seeking of medical aid.

Causes of Rising Infertility in India:

- **Delayed Parenthood:** Career prioritization and financial stability goals are pushing the average age of first-time parents beyond the biological prime.
- E.g. Data from urban hubs like Bengaluru and Mumbai show a 25% increase in women seeking fertility treatments after the age of 35 in 2025-26.

- **Environmental Pollution:** High levels of **Endocrine Disrupting Chemicals (EDCs)** in air and water are sabotaging hormonal health.
- E.g. Studies in Delhi have linked Poor air quality days to transient drops in sperm motility among healthy young males.

- **Lifestyle-Related Disorders:** Obesity and PCOS (Polycystic Ovary Syndrome) have become epidemic due to sedentary routines and processed diets.
- E.g. One in five Indian women is estimated to suffer from PCOS in 2026, a leading cause of **anovulatory infertility.**

- **Chronic Psychological Stress:** High cortisol levels from workplace pressure directly inhibit the HPA axis, disrupting ovulation and spermatogenesis.
- E.g. Research published in Frontiers in Endocrinology (2024) confirmed that depression in Indian men is significantly associated with decreased semen concentration.

- **Untreated Reproductive Infections**: In rural areas, the stigma around STIs and Pelvic Inflammatory Disease (PID) leads to tubal blockages.
- E.g. Cases of tubal factor infertility in states like Bihar are frequently traced back to untreated post-partum infections or tuberculosis.

Challenges Associated with Infertility:

- **Social Stigma and Ostracization:** Women are often branded with pejorative terms and excluded from social/religious gatherings if they fail to conceive.
- E.g. In several rural clusters in Tamil Nadu, the term 'Maladi' is still used to socially isolate women, leading to severe identity fragmentation.

- **Prohibitive Treatment Costs:** IVF and ART procedures remain catastrophic expenses for the middle and lower classes.
- E.g. An average IVF cycle in 2026 costs between ₹1.5–3 lakh, while over 90% of Indian insurance policies still exclude infertility coverage.

- **The Silence of Male Infertility:** Patriarchal norms prevent men from seeking semen analysis, often leading to unnecessary and invasive testing for their wives.
- E.g. Clinical reviews in 2025 noted that men often wait 3-5 years longer than women to undergo their first fertility screening due to masculinity concerns.

- **Psychological Feedback Loops:** The stress of failing to conceive becomes a biological impediment, creating a cycle where stress prevents the very pregnancy being sought.
- E.g. The monthly cycle of hope and grief in IVF patients has been linked to elevated salivary alpha-amylase, which reduces the probability of implantation.

- **Regulatory Gaps in Tier II/III Cities:** Rapidly mushrooming clinics in smaller towns often lack standardized protocols or transparent success rates.

- E.g. Under the 2025 ART guidelines, several basement clinics in North India were shut down for misleading advertisements and donor exploitation.

Initiatives Taken by the Government:

- **ART and Surrogacy (Regulation) Acts:** Stringent 2025 guidelines mandate the registration of all clinics and protect donors from exploitation (e.g., limiting egg donation to once in a lifetime).
- **Budget 2026 Health Focus:** The 2026 Union Budget proposed NIMHANS-2 and the upgrade of regional mental health institutes to address the psychological toll of chronic conditions like infertility.
- **Project Sanjivini:** A collaborative pilot between the Indian Fertility Society and the government to disseminate reproductive health knowledge at the grassroots level in 5 states.
- **National Registry:** The establishment of a digital registry to track ART outcomes, ensuring clinics provide transparent and honest success rates to patients.

Way Ahead:

- **Integrating Mental Health:** Counseling should be a mandatory, non-optional component of every IVF cycle to manage the emotional rollercoaster of treatment.
- **Insurance Inclusion:** The IRDAI should mandate at least partial coverage for infertility under standard health insurance to prevent financial ruin.
- **Workplace Sensitivity:** Corporates should adopt Fertility Leave policies and insurance support for egg freezing to accommodate delayed parenthood.
- **Male-Centric Campaigns**: Public health messaging must de-stigmatize male factor infertility to ensure both partners are tested simultaneously from the start.
- **Community Education:** Utilizing ASHA workers to educate rural populations that infertility is a medical condition, not a moral failure or a curse.

Conclusion:

- Infertility in 2026 is no longer just a biological hurdle but a profound social and psychological crisis that demands a gender-neutral approach. By bridging the gap between advanced reproductive science and empathetic social narratives, India can transform fertility care into a journey of dignity rather than one of quiet suffering. True healing will only occur when we treat the mind with the same urgency as the body.

UPSC Prelims [PYQ 2024]

1. The total fertility rate in an economy is defined as:

a) the number of children born per 1000 people in the population in a year.
b) the number of children born to a couple in their lifetime in a given population.
c) the birth rate minus death rate.
d) the average number of live births a woman would have by the end of her child-bearing age.

Ans: 1 – (d) is the correct answer.

- The Total Fertility Rate (TFR) is the average number of children who would be born to any women in her lifetime. It is the average number of children a women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality.

UPSC Prelims [PYQ 2024]

2. Consider the following countries:

1. Italy
2. Japan
3. Nigeria
4. South Korea
5. South Africa

Which of the above countries are frequently mentioned in the media for their low birth rates, or ageing population or declining population?

a) 1, 2 and 4
b) 1, 3 and 5
c) 2 and 4 only
d) 3 and 5 only

Ans: 2 – (a) is the correct answer.

- **Option 1 is correct:** Births in Italy dropped to a new historic low below 400,000 in 2022, as per the national statistics bureau as the population continued to shrink. Last year Italy recorded more than 12 deaths for every seven births and the resident population fell by 179,000 to 58.85 million, ISTAT said in its annual demographic report
- **Option 2 is correct:** The number of babies born in Japan fell for an eighth straight year to a fresh record low in 2023, preliminary government data showed on Tuesday, underscoring the daunting

task the country faces in trying to stem depopulation.

- The number of births fell 5.1% from a year earlier to 758,631, while the number of marriages slid 5.9% to 489,281 — the first time in 90 years the number fell below 500,000 — foreboding a further decline in the population as out-of-wedlock births are rare in Japan
- **Option 3 is incorrect:** Nigeria is not facing the low population problem. On the contrary, Nigeria's population is projected to grow from more than 186 million people in 2016 to 392 million in 2050, becoming the world's fourth most populous country.
- **Option 4 is correct:** South Korea's fertility rate, already the world's lowest, continued its dramatic decline in 2023, as women concerned about their career advancement and the financial cost of raising children decided to delay childbirth or to not have babies.
- The average number of expected babies for a South Korean woman during her reproductive life fell to a record low of 0.72 from 0.78 in 2022, data from Statistics Korea showed
- **Option 5 is incorrect:** The population of South Africa will increase from 59 million in 2020 to 66 million in 2030 and 80 million in 2080.

Chemical Gas Leak in India

- The recent gas leak at Sainex Met Chem Pharma in Sarigam GIDC, Valsad, has sparked fresh concerns regarding industrial safety in India's chemical hubs after four individuals, including the unit owner, were hospitalized.

Chemical Gas Leak in India:

- A chemical gas leak is the unintentional release of hazardous gaseous substances or vapors into the environment, often resulting from equipment failure, human error, or chemical reactions.
- These leaks can involve toxic gases (e.g., Chlorine, Ammonia), flammable gases (e.g., LPG, Methane), or asphyxiants that displace oxygen.

Chemical Leak Data & Statistics in India

- India's rapid industrialization has led to a high density of chemical units.
- **Major Accident Hazard (MAH) Units:** India has over 1,861 MAH units spread across 300 districts, according to the National Disaster Management Authority (NDMA).
- **Recent Trends:** Between 2021 and 2024, India reported an average of 15–20 significant chemical

accidents annually, primarily in the Chemical Belt of Gujarat and Maharashtra.

- **Casualty Rate:** Over the last decade, chemical accidents in India have resulted in approximately 250+ deaths and over 500 major injuries.
- **The Gujarat Hub:** Gujarat alone accounts for nearly 35% of India's chemical production, making it the most vulnerable state to industrial gas leaks.
- **Small-Scale Vulnerability:** Nearly 60% of chemical mishaps occur in Small and Medium Enterprises (SMEs) where safety audits are often less rigorous than in large MNCs.

Infamous Chemical Leaks in India:

Incident	Year	Chemical Involved	Impact
Bhopal Gas Tragedy	1984	Methyl Isocyanate (MIC)	World's worst industrial disaster; thousands killed.
Vizag Gas Leak	2020	Styrene Gas	12 deaths; thousands fell ill near LG Polymers plant.
Surat Gas Leak	2022	Hazardous Waste Gas	6 workers died after inhaling fumes from a tanker.
Ludhiana Gas Leak	2023	Hydrogen Sulfide	11 people died due to gas emanating from a sewer line.
Vapi Chemical Blast	2024	Multiple Reactants	Large-scale fire and toxic smoke evacuation in GIDC.

Challenges Associated:

- **Enforcement of Safety Audits:** Many units bypass regular pressure vessel testing.
- E.g. In the 2026 Valsad leak, preliminary reports suggest the reactor's integrity was compromised, yet it was operational.

- **Proximity of Residential Areas**: Industrial zones (GIDC) are often too close to worker colonies.
- E.g. During the 2020 Vizag leak, the gas reached residential villages within minutes because the plant lacked a sufficient green buffer zone.

- **Delayed Emergency Response:** Lack of real-time gas sensors in older factories.
- E.g. In the 2023 Ludhiana incident, authorities could not identify the gas source for hours, delaying the correct medical treatment for victims.

- **Informal Labor Risk:** Contractual workers are often not trained in Stop-Work authority or PPE use.
- E.g. In the 2022 Surat tanker leak, workers were exposed because they were unaware of the hazardous nature of the waste being dumped.

- **Aged Infrastructure:** Many reactors in India's older GIDCs have exceeded their 20-year safety lifespan.
- E.g. Frequent pipe bursts in the Ankleshwar industrial estate (2025) have been attributed to the corrosion of decades-old chemical conduits.

NDMA Guidelines to Handle Chemical Leaks:

- **Risk Mapping:** Identification of MAH units and creating a Zone of Impact map for surrounding communities.
- **Buffer Zones:** Maintaining a mandatory No-Construction Zone around hazardous chemical storage.
- **Emergency Response Centers (ERCs):** Establishing 24/7 centers equipped with specialized Hazmat suits and neutralizing agents (like sodium bicarbonate).
- **Mock Drills:** Mandating quarterly joint drills between the factory, fire department, and local hospitals.
- **Medical Preparedness:** Ensuring local hospitals have Antidote Banks specific to the chemicals used in nearby industries.

The Way Ahead:

- **Digital Monitoring:** Implementation of IoT-based sensors on all reactors to provide real-time pressure alerts to the GPCB.
- **Stricter Penalties:** Moving beyond closure notices to heavy criminal liability for owners if safety protocols are skipped.
- **Hazardous Waste Tracking:** Using GPS-enabled tracking for all chemical waste tankers to prevent illegal dumping.

- **Public Awareness:** Using SMS-based early warning systems to alert residents within a 5km radius the moment a leak is detected.
- **Green Chemistry:** Incentivizing pharmaceutical units to switch to less volatile solvent alternatives to minimize gas cloud risks.

Conclusion:

- The **Valsad gas leak** is a sobering reminder that industrial growth must not come at the cost of human safety. While the four victims are recovering, the incident underscores the systemic gaps in reactor maintenance and emergency cordoning. Strengthening the oversight of the Gujarat Pollution Control Board and adopting Safety-by-Design is the only way to prevent the next major chemical tragedy.

India - USA Trade Deal 2026

- India and the US have reached a landmark trade deal in February 2026, significantly reducing tariffs to 18% and ending a period of intense trade friction between the two nations.

About India-USA Trade Deal 2026:

- The India-USA Trade Deal 2026 is a strategic economic reset announced by President Donald Trump and Prime Minister of India on February 2, 2026.
- This reciprocal agreement aims to de-escalate the trade war triggered in late 2025, providing Indian exporters a competitive edge in the American market while securing massive energy and agricultural commitments for the United States.

Key Features of the Deal:

- **Tariff Reduction:** The US has slashed effective tariffs on Indian goods from a peak of 50% down to 18%.
- **Removal of Punitive Duties:** The additional 25% penalty—previously imposed due to India's Russian oil imports—has been scrapped.
- **Energy Pivot:** India has agreed to significantly reduce or halt Russian oil purchases, shifting procurement to the US and potentially Venezuela.
- **$500 Billion Commitment:** India has pledged to purchase $500 billion worth of US energy, agriculture, coal, and technology products (likely over a multi-year period).

- **Reciprocal Access:** India will work toward reducing its own tariffs and non-tariff barriers on US industrial goods toward zero.
- **Sectoral Safeguards:** India has successfully excluded sensitive dairy and core agricultural sectors (like staple crops) from the deal to protect domestic farmers.
- **Tech & Nuclear Expansion:** The deal leverages India's **SHANTI Act, 2025,** allowing US firms greater access to India's civil nuclear and data center markets.
- **Preferential Treatment:** India now enjoys a tariff rate (18%) better than regional competitors like Vietnam, Bangladesh, and Pakistan (facing 19–20%).

Significance of the Trade Deal:

- **Export Revival:** Restores price competitiveness for labor-intensive sectors like textiles, leather, and gems, which were struggling under the 50% tariff regime.
- **Strategic Alignment:** Reaffirms the India-US partnership as a critical counterweight to China's influence in the Indo-Pacific region.
- **Economic Stability:** The deal has already stabilized the Rupee and boosted the Indian stock market (Sensex/Nifty) by reducing trade uncertainty.
- **Investment Inflow:** Tax holidays for data centers and nuclear energy cooperation are expected to attract billions in FDI from US tech giants.
- **Global Supply Chain Role:** Positions India as a reliable, lower-tariff alternative for global companies looking to de-risk from China.

Challenges Associated with the Trade Deal:

- **Erosion of Strategic Autonomy:** Reducing Russian oil imports may strain India's long-standing Special and Privileged Strategic Partnership with Moscow.
- E.g. India's continued reliance on Russia for S-400 missile defense parts could become a point of friction if the US demands a total break.

- **Domestic Political Backlash:** Opening markets to US farm products, even partially, faces stiff opposition from farmer unions.
- E.g. The Samyukt Kisan Morcha (SKM) has already termed the deal a surrender to U.S. imperialism, fearing a flood of subsidized American crops.

- **The Zero-Tariff Trap:** Trump's claim that India will move to 0% tariffs could cripple small-scale Indian manufacturers.

- E.g. Zero duty on US-made machinery could outprice local MSMEs currently benefiting from protective duties.

- **Import Bill Inflation**: Shifting from discounted Russian crude to higher-priced US or Venezuelan oil could widen India's Current Account Deficit (CAD).
- E.g. Recent data showed India's oil import dependence at 88.2%, making any price hike in sourcing a massive fiscal burden.

- **Non-Tariff Barriers:** While tariffs are lower, Indian exporters still face invisible hurdles like strict US quality and safety standards.
- E.g. Indian shrimp and fruit exports frequently face rejection at US ports due to stringent Sanitary and Phytosanitary (SPS) regulations.

Way Ahead:

- **Legal Scrubbing:** Both nations must now finalize the fine print and formalize the joint statement into a legally binding treaty.
- **Infrastructure Scaling:** India needs to rapidly upgrade its LNG terminals and ports to handle the promised $500 billion surge in US energy imports.
- **Diversification:** While the US deal is vital, India must continue fast-tracking FTAs with the UK, EU, and Gulf nations to avoid over-dependence on a single market.
- **MSME Support:** The government should provide transition subsidies to help small businesses upgrade technology to compete with US imports.
- **Monitoring Mechanism:** Establish a bilateral committee to ensure that US technical standards (SPS/TBT) are not used as backdoor protectionism against Indian goods.

Conclusion:

- The 2026 India-US trade deal is a pragmatic give-and-take that trades energy concessions for manufacturing survival. By securing an 18% tariff rate, India has protected its core export sectors while navigating a complex geopolitical landscape between Washington and Moscow. Its long-term success will depend on how well India balances its domestic farmer interests with its global trade ambitions.

Major Push in the Union Budget 2026-27 for AYUSH

- The AYUSH sector has received a major boost in the Union Budget 2026-27, strengthening traditional medicine systems.

AYUSH

- The Union Budget 2026-27 significantly increased allocations for the AYUSH sector and announced major institutional and regulatory initiatives to expand its domestic and global footprint.

Understanding the AYUSH System in India

- AYUSH refers to Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy, India's traditional systems of medicine that coexist with modern allopathic healthcare.
- Over the last decade, the government has sought to integrate AYUSH into the public health system while also positioning it as a source of economic growth and soft power.
- Institutionally, AYUSH functions under the Ministry of AYUSH, established in 2014.
- The sector operates through a nationwide network of AYUSH hospitals, dispensaries, teaching institutions, research councils, and regulatory bodies.
- **The National AYUSH Mission (NAM)** is the primary vehicle for integrating AYUSH services into primary healthcare by co-locating AYUSH facilities in existing health centres.
- India also hosts Institutes of National Importance such as the All India Institute of Ayurveda, New Delhi, and the National Institute of Homoeopathy, Kolkata, along with research bodies like the Central Council for Research in Ayurvedic Sciences.
- Regulatory oversight is provided by the National Commission for Indian System of Medicine and the National Commission for Homoeopathy, while drug standards are set by the Pharmacopoeia Commission for Indian Medicine and Homoeopathy.

Budgetary Expansion of the AYUSH Sector

- The total allocation rose to Rs. 4,408 crore, up from Rs. 3,992 crore in 2025-26 and Rs. 2,122 crore in 2020-21.
- This reflects a long-term policy shift to mainstream traditional medicine within India's healthcare framework.
- A major announcement was the establishment of three new All-India Institutes of Ayurveda, envisioned as centres of excellence on the lines of AIIMS.
- These institutions will combine patient care, advanced research, and high-quality medical

education, aiming to standardise Ayurvedic practice nationally.

- The Budget also proposed enhanced funding for upgrading the **WHO Global Traditional Medicine Centre in Jamnagar,** signalling India's ambition to lead global standard-setting for traditional medicine practices.

Strengthening Infrastructure, Research, and Supply Chains

- The National AYUSH Mission received a 66% hike to Rs. 1,300 crore, focusing on modernising AYUSH hospitals and dispensaries, expanding preventive healthcare, and upgrading existing facilities.
- Additional funds were earmarked for improving AYUSH pharmacies and drug-testing laboratories to address long-standing quality and safety concerns.
- A notable innovation announced **was Bharat-VISTAAR**, a multilingual AI-based digital assistant designed to support farmers cultivating medicinal plants.
- It will provide real-time guidance on crop quality, market prices, and export certification, strengthening the medicinal plant supply chain.

Key Budget Highlights for AYUSH (2026-27)

- **Institutional Expansion**: The government proposed establishing **three new All India Institutes of Ayurveda (AIIA)**, modelled after the apex institute in New Delhi, to enhance education, research, and clinical excellence.
- **National AYUSH Mission (NAM)**: Allocation for this flagship scheme saw a sharp **66.5% hike**, rising to **₹1,300 crore** (up from ₹780.96 crore in the FY 2025-26 revised estimates).
- **Regional Medical Hubs**: A new scheme will support states in establishing **five Regional Medical Hubs** in partnership with the private sector. These hubs will integrate AYUSH centres with advanced diagnostics, post-care, and rehabilitation facilities to promote medical tourism.
- **Global Research & Quality**: The **WHO Global Traditional Medicine Centre** in Jamnagar will be upgraded to bolster global outreach and evidence-based research. Additionally, AYUSH pharmacies and drug-testing laboratories will be upgraded to meet higher certification standards for better exportability.
- **Digital Innovation**: The introduction of **Bharat-VISTAAR**, a multilingual AI-based assistant, was announced to support medicinal plant farmers with real-time guidance on crop quality, market prices, and export certification.
- **Human Resource Development**: Plans include training **1.5 lakh multiskilled caregivers** in yoga and wellness services and creating **10 new allied health disciplines** to train 1 lakh professionals

over five years

India-EU Free Trade Agreement and Global Outreach

- A key driver behind the Budget push is the India-European Union Free Trade Agreement (FTA), which has opened new opportunities for AYUSH in European markets.
- In EU countries that do not specifically regulate traditional medicine, Indian AYUSH practitioners can now offer services based on qualifications obtained in India.
- The FTA also allows Indian companies to establish wellness centres and Ayurvedic clinics across the EU with legal certainty.
- Importantly, it enables mutual recognition of certain laboratory test results and safety certifications, easing the export of AYUSH products.
- The agreement also recognises India's Traditional Knowledge Digital Library, helping prevent biopiracy and wrongful patent claims on Indian formulations.

Concerns Around Evidence, Safety, and Regulation

- Despite the expansion, the AYUSH sector faces persistent criticism.
- Medical bodies such as the **Indian Medical Association** argue that many AYUSH therapies lack rigorous empirical validation through randomised controlled trials.
- Safety concerns remain, particularly regarding the presence of heavy metals like lead and mercury in some Ayurvedic formulations, which have triggered international health advisories.
- Another contentious issue **is "mixopathy",** the overlap between AYUSH and allopathic practices.
- Policy decisions allowing Ayurveda practitioners to perform certain surgical procedures and prescribe allopathic drugs have led to legal disputes and professional opposition, highlighting the need for clearer regulatory boundaries

Conclusion

- In conclusion, the 2026 budget provides the necessary financial and institutional framework to position AYUSH as a scientific, accountable, and export-oriented pillar of India's health diplomacy and "Viksit Bharat" goals

Rebalancing India's Fiscal Federalism: Takeaways from the 16th FC

- The 16th Finance Commission has submitted its report for **2026–31**, and the Union government

has accepted its recommendations on tax devolution to States, shaping Centre–State fiscal relations for the next five years.

Background and Context

- India's federal system rests on a delicate balance between:
- The Centre's responsibility for national priorities such as defence, macroeconomic stability, and major infrastructure, and
- The States' responsibility for delivering core public services such as health, education, agriculture, and local development.
- The Finance Commission, constituted every five years under **Article 280**, is the constitutional mechanism to manage this balance by recommending how central tax revenues should be shared between the Centre and the States and among States themselves.

Over the past decade, this balance has come under strain due to:

- Rising use of cess and surcharge by the Centre **(outside the divisible pool)**
- Increasing fiscal stress on States
- Greater expenditure responsibilities devolved to States, particularly after the **14th Finance Commission**
- Against this backdrop, the 16th Finance Commission's recommendations carry major implications for fiscal autonomy, equity, and efficiency in India's federal structure.

Constitutional Framework of Fiscal Federalism

- India's fiscal federalism is anchored in:
- **Article 270:** Provides for the distribution of net tax proceeds between the Centre and the States.
- **Article 280:** Mandates the constitution of a Finance Commission every five years to recommend how this distribution should take place.

Taxes Shared Between the Centre and States

1. **Corporation Tax**
2. **Personal Income Tax**
3. **Central Goods and Services Tax (CGST)**
4. **Centre's share of Integrated GST (IGST)**

- Cess and surcharge, however, are **excluded** from the divisible pool.

- For 2025–26, the divisible pool constitutes about 81% of the **Centre's gross tax revenue**, after excluding cess and surcharge. This exclusion has been central to debates on fiscal equity and resource adequacy for States.

Evolution of Vertical Devolution

- Vertical devolution refers to **the share of States** in the divisible pool of central taxes.
- **Till the 13th Finance Commission (2010–15):** States received 32%, alongside conditional transfers under **Centrally Sponsored Schemes (CSS).**
- **14th Finance Commission (2015–20):** Share increased to **42%,** and many tied CSS transfers were rationalised, significantly enhancing States' untied fiscal space.
- **15th Finance Commission (2020–26):** Share reduced to **41%** after the reorganisation of Jammu and Kashmir into two Union Territories.
- This marked a structural shift toward greater fiscal autonomy for States, though concerns remained over the Centre's growing use of non-shareable cesses.

Horizontal Devolution Criteria

- Horizontal devolution refers to **how the States' share is distributed among individual States**.
- Since the 13th Finance Commission, criteria have broadly emphasised:
- **Equity:** Income distance
- **Need-based factors:** Population and area
- **Efficiency factors:** Forest cover, demographic performance, tax effort

- This framework has generated persistent debates between:
- Economically advanced States seeking recognition for growth and contribution, and
- Less-developed States seeking redistribution to ensure minimum standards of public services.

States' Key Demands Before the 16th Finance Commission

1. Demands on Vertical Devolution

- 18 States demanded an increase in the States' share from **41% to 50%.**
- Others sought 45–48%.
- **Several States demanded:**
- Inclusion of cess and surcharge in the divisible pool, or
- A cap on their imposition.

2. Demands on Horizontal Devolution

- Many States wanted equity parameters (income distance) to retain dominance.
- Some recommended reducing the weight of income distance.
- Industrialised States such as Maharashtra, Gujarat, Tamil Nadu, Karnataka, and Telangana demanded inclusion of States' contribution to GDP as a criterion.

- These demands reflected a fundamental tension between:
- Redistribution, and Rewarding performance and growth contribution.

Recommendations of the 16th Finance Commission

On Vertical Devolution

- The Commission rejected the proposal to include or cap cess and surcharge in the divisible pool, stating that under the present constitutional scheme, this is neither permissible nor desirable, as these instruments may be required for exigencies.

It retained the States' share at 41%, citing:

- States already receive a substantial share of total tax revenues.
- Much of Union spending under CSS is routed to the States.
- The Union requires higher resources for defence, infrastructure, and national priorities.
- **Result: No major change in vertical devolution.**

On Horizontal Devolution

The Commission adopted two guiding principles:

- Changes should be gradual, avoiding fiscal shocks.
- Efficiency and growth contributions should receive due recognition.

Accordingly:

- A new criterion of States' contribution to GDP has been introduced.
- The assigned weight ensures a directional shift without drastic redistribution.

Outcome:

- Southern and western States witness a marginal increase in their share.
- Large northern and central States see a marginal decrease.

- Overall, the outcome represents a calibrated shift toward efficiency while maintaining redistributive balance.

Broader Fiscal Observations

- The Commission made several important observations:
- The Centre should progressively reduce reliance on cess and surcharge.
- States should make subsidies more efficient and targeted.
- Power sector reforms must be actively pursued.
- States need to control fiscal deficits and debt levels.
- Both Centre and States should undertake public sector enterprise reforms.
- These recommendations reflect concerns over fiscal sustainability, macroeconomic stability, and cooperative federalism.

Significance for India

Strengthening Cooperative Federalism

- By maintaining stability in vertical devolution while refining horizontal criteria, the Commission reinforces trust between the Centre and States.

Balancing Equity and Efficiency

- The introduction of GDP contribution as a criterion reflects a shift toward recognising performance, without abandoning redistribution.

Preserving Fiscal Stability

- Retaining the 41% share avoids sudden fiscal shocks and helps the Union meet national expenditure priorities.

Encouraging Responsible State Finances

- Emphasis on subsidy rationalisation, debt control, and power sector reforms pushes States toward fiscal discipline and long-term sustainability.

Shaping the Next Phase of Federal Governance

- The report sets the tone for Centre–State fiscal relations in an era of:

1. Expanding welfare commitments
2. Infrastructure push
3. Increasing subnational responsibilities

Challenges and Way Forward

Challenges

- Persistent State concerns over rising cess and surcharge
- Balancing redistribution with incentives for growth
- Managing fiscal stress in poorer States
- Ensuring implementation of recommended reforms

Way Forward

- Gradual reduction of cess and surcharge to enhance States' fiscal space.
- Transparent consultation mechanisms between Centre and States on fiscal policy.
- Strengthening State revenue capacity through tax administration reforms and economic diversification.
- Monitoring and incentivising fiscal discipline through outcome-based transfers.
- Aligning Centre–State priorities under a shared vision of cooperative federalism.

IT Rules Amendment 2026

- The Union Government notified the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2026 on February 10, 2026.
- The amendment specifically targets the rising threat of deepfakes and misinformation by mandating a swift 3-hour takedown window and compulsory labelling for AI-generated content.

About IT Rules Amendment 2026:

- The amendment is a revision of the existing IT Rules, 2021, aimed at bringing **Synthetically Generated Information (SGI)** under strict legal oversight. It defines SGI as any audio, visual, or audio-visual content created or altered algorithmically to appear real or indistinguishable from a natural person or real-world event.

Key Amendments to the IT Rules:

- Legal Recognition of "Synthetically Generated Information": For the first time, Indian law provides a clear, technical definition of Synthetic Content. It covers any media (audio, video, or images) created or modified by algorithms to look or sound authentic.
- **The Focus:** It specifically targets deepfakes and AI impersonation.
- **The Nuance:** It smartly carves out exceptions for good faith editing—like basic filters, accessibility

features (text-to-speech for the blind), or academic research—so that innovation isn't accidentally criminalized.

- **Mandatory Labelling & Metadata:** Transparency is no longer optional; it must be baked into the file itself.
- **Visual/Audio Labels:** If a video is AI-generated, it must have a visible watermark. If it's audio, it must start with a spoken disclaimer.
- **Digital Fingerprints:** Platforms must embed provenance markers (metadata) that stay with the file even if it's shared elsewhere. This allows investigators to trace the origin of a deepfake back to the specific AI tool used to create it.
- **Prohibition on Illegal AI Content:** The government has moved from reactive to preventative. Intermediaries (like Instagram or X) must now use automated AI filters to block the upload of:
- **CSAM & NCII:** Child abuse material and non-consensual revenge porn deepfakes.
- **Public Safety Risks:** AI-generated instructions on how to build explosives or illegal weapons.
- **Deception:** Content designed to impersonate high-ranking officials or create false electronic records to commit fraud.
- **User Declaration Mechanism:** The burden of honesty is placed on the user.
- **Self-Disclosure:** When you upload content to a major platform, you must declare if it was made with AI.
- **Verification:** Platforms cannot just take your word for it; they are legally required to use their own technical tools to double-check if your real video is actually a deepfake.
- **Shortened Takedown Timelines:** In the age of viral content, 36 hours was considered an eternity.

The new rules require warp-speed action:

- 3 Hours: For content deemed illegal by a court or the government.
- 2 Hours: For the most sensitive violations, like non-consensual deepfake nudity, where every minute of exposure causes trauma.
- **Faster Grievances:** Platforms must acknowledge your complaint in 7 days (down from 15), forcing them to staff up their moderation teams.
- **Law Enforcement Coordination:** This amendment bridges the gap between digital policy and criminal justice.
- **BNS Integration:** References are now aligned with the Bharatiya Nyaya Sanhita (BNS), 2023, replacing the old IPC.
- **Identity Disclosure:** If a crime is committed via AI, platforms must reveal the creator's identity to

the police. This is designed to end the anonymity shield that often protects deepfake creators.

- **Safe Harbour Clarification:** This is the Carrot and Stick approach for Big Tech.
- **Section 79 Protection:** Platforms generally aren't sued for what users post (Safe Harbour).
- **The Condition:** Under the 2026 rules, if a platform fails to label AI or misses a 3-hour takedown window, they lose this protection. They can then be sued as if they were the ones who created the illegal content.

Significance of the Amendment:

- **Combating Viral Misinformation:** Prevents the rapid spread of fake news before it can cause real-world damage.
- E.g. In the 2025 state elections, fabricated videos of candidates making inflammatory speeches were quelled by rapid intervention from the Cyber Crime Coordination Centre.

- **Protecting Individual Dignity:** Provides a fast-track remedy for victims of non-consensual AI-generated imagery.
- E.g. The 2024 Rashmika Mandanna deepfake incident highlighted the need for near-instant removal to prevent irreversible reputational harm.

- **Ensuring Electoral Integrity:** Guards against the use of AI influencers or morphed videos to sway voters during the sensitive Model Code of Conduct period.
- E.g. During recent local polls, AI-cloned voices of deceased political leaders were used for campaigning, prompting calls for strict disclosure.

- **Strengthening Business Accountability:** Forces global tech giants to invest in India-specific moderation and detection technologies.
- E.g. Companies like Meta and X had to expand their Indian Grievance Officer teams in late 2025 to meet the increasingly tight response windows.

- **Alignment with New Criminal Laws:** The rules replace references to the IPC with the Bharatiya Nyaya Sanhita (BNS), 2023, streamlining the legal process.
- E.g. Police in Delhi recently used BNS provisions alongside IT rules to fast-track a case involving AI-based financial digital arrest scams.

Challenges Associated with Implementation:

- **Technical Accuracy of Detection:** Automated tools often struggle to differentiate between high-quality deepfakes and actual real footage.
- E.g. In 2025, several genuine satire videos were accidentally flagged and removed by AI filters on major video-sharing platforms.

- **Resource Constraints for 3-Hour Takedowns:** Smaller intermediaries may find it impossible to maintain 24/7 legal teams capable of acting within 180 minutes.
- E.g. Regional social media apps in South India reported difficulty in 2024 meeting the high costs of compliance for real-time content moderation.

- **Potential for Censorship by Proxy:** Fears that the government might use the short window to suppress legitimate dissent or political parody.
- E.g. Ongoing litigation in the Karnataka High Court (X Corp v. Union of India) debates whether takedown powers are being used too broadly.

- **Traceability vs. Privacy:** Embedding metadata and provenance markers could potentially compromise the end-to-end encryption of messaging apps.
- E.g. In 2025, privacy advocates argued that the new metadata rules could act as a "backdoor" to identifying anonymous whistle blowers.

- **Complexity of Blended Content:** Difficulty in regulating videos that are 90% real but contain small, crucial AI-altered details.
- E.g. A 2024 controversy involved a real protest video where the audio was subtitled with AI-generated translated hate speech that didn't exist.

Way Ahead:

- **Standardized Watermarking:** Developing a global industry standard for invisible digital watermarks that survive compression and re-uploads.
- **Capacity Building for Law Enforcement:** Training local police units (beyond just the DIG rank) to accurately identify and report synthetic harms.
- **Public Awareness Campaigns:** Educating citizens on how to spot telltale signs of deepfakes, reducing the reliance on takedowns alone.
- **Independent Review Mechanism:** Establishing an autonomous body of experts to review takedown orders to prevent political misuse.

- **Incentivizing Research:** Providing grants to Indian startups building advanced AI-detection tools specifically for regional Indian languages.

Conclusion:

- The 2026 IT Rules amendment marks a decisive end to the wild west era of unregulated generative AI in India by shifting the burden of truth onto platforms. While the 3-hour takedown window poses a massive logistical challenge, it reflects the government's priority of safety over safe harbour. Success will depend on balancing these strict enforcement measures with the protection of free speech and user privacy.

What is Oil Zapper?

- Oil Zapper is an innovative bioremediation technology aimed at alleviating the environmental threat of oil spills in aquatic and terrestrial ecosystems.Against the backdrop of growing urgency for cleanup, Oil Zapper utilizes a consortium of so-called Application-Selected bacterial strains that are capable of degradation of different fractions of crude oil and oily sludge.The technology is targeted at providing a sustainable and efficient manner for site restoration that is minimising ecological damage and fostering environmental recovery.

Problem of Oil Spills

- **Environmental Impact:** Oil spills pose some of the greatest threats to marine and terrestrial ecosystems. Oil, whether deliberately discharged, released by accident from leaks, or jarring losses during transportation, grieves local habitats. Crude oil forms an oil slick over the surface of water bodies, contaminating aquatic life by coating birds' feathers, fish gills, and the surfaces of marine plants, interfering with their functions and natural behaviors, including reproductive cycles. Spills on land may pose soil contamination, subsequently causing vegetation loss and the death of terrestrial animals.
- **Fire Hazards, Groundwater Pollution, and Air Pollution:** Since crude oil is a very flammable material, almost immediately upon release it could pose a fire hazard worth considering, especially when oil accumulates on a surface. Such fires can be disastrous for humans and the local environment as well.
- When oil finds its way into the subsurface, it can percolate through different layers of soil,

eventually contaminating groundwater supplies and posing a serious threat to the drinking water sources. Additionally, volatile organic compounds (VOCs) released during oil spills can evaporate into the atmosphere, contributing to air pollution and potentially causing respiratory issues for nearby populations.

- **The Issue of Oily Sludge:** Oily sludge, a byproduct of oil extraction and refining processes, presents its own set of challenges.
- This thick, viscous material often accumulates during the drilling and processing of crude oil.
- Like oil spills, oily sludge is difficult to clean up and poses severe environmental risks, including soil degradation, water contamination, and air quality issues.
- The presence of oily sludge can lead to long-term ecological damage if not addressed properly, making effective remediation techniques crucial for environmental health and safety.

Advantages of Oil Zapper

- The advantages of utilising Oil Zapper for bioremediation are numerous:
- Less expensive for treatment makes the larger-scale implementation of Oil Zapper cheaper than traditional cleanup methods. The cost of oily sludge treatment is roughly one-third that of standard methods, where standard ones compromise on making their own contaminated wastes in pits.
- **In Situ Application:** Oil Zapper can be applied wherever contamination occurs and thus avoids the need to transport heavy shipments of hazardous wastes. This saves risks to human health and environmental hazards that such transfers would otherwise bear.
- **Safe End Products:** The biodegradation of oily sludge results in conversion into harmless byproducts mainly carbon dioxide and water. In adversity of incomplete degradation, the fatty acids formed shall be harmless; none of them generate secondary pollutants.
- **Soil Restoration**: Remediated sites return to their original state, willing not be charred or nutritionally depleted in land. With the addition of mycorrhizal bio-fertilizers, the soil from treated land can be enriched for further revitalization.
- **Environmental and Economic Benefits**: By cleaning contaminated land, Oil Zapper enhances environmental quality, making treated areas suitable for various uses such as agriculture, housing, and reforestation.
- **Job Creation**: The implementation of Oil Zapper technology has generated numerous employment opportunities in India and beyond, contributing to economic growth.

Effectiveness of Oil Zapper

- The Oil Zapper works by a unique mixture of four bacterial strains. These bacterial strains get chosen due to their ability to degrade different fractions of crude oil, including.
- **Aliphatic Hydrocarbons:** Straight or branched-chain hydrocarbons are abundant in crude oil. These bacteria degrade these compounds into less harmful ones.
- **Aromatic Hydrocarbons**: These compounds with complex ring structures are often more difficult to degrade. The bacterial strains used in Oil Zapper have enzymes that break down these compounds.
- **Asphaltenes:** These heavy fractions of crude oil are rather stable and resistant to degradation. The bacterial consortium includes strains which can modify and degrade asphaltenes into less polymerized intermediates towards biodegradation.
- **NSO Compounds:** Compounds with nitrogen, sulfur, and oxygen are also found in crude oil and oily sludge. The bacterial strains degrade these compounds causing accumulation of toxic substances in the environment.
- Oil Zapper represents a sustainable and efficient way to rear up the hazards of an oil spill. By leveraging natural bioremediation processes, it minimizes damage to the environment while fostering economic gains and creating jobs, thus making it a crucial tool for the future of ecological restoration.

Safeguarding Women at Work

- The Ministry of Women and Child Development (MoWCD) recently organized a National Conference on Safety of Women at Workplace to strengthen the implementation of the SH Act 2013 and promote the revamped SHe-Box portal as a single-window digital solution for complaint redressal.

About Safeguarding Women at Work:

- Safeguarding women at work refers to the legal and institutional framework designed to prevent, prohibit, and redress sexual harassment. It is anchored by the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (SH Act).

Key Data & Facts:

- **Rising Formal Participation:** Net female payroll additions in India reached approximately 4.42 lakh in July 2025, increasing the need for robust formal safety mechanisms.

- **Persistent Underreporting:** Despite laws, recent studies show nearly two-thirds of harassment incidents in India go formally unreported due to fear of retaliation.
- **NCRB Trends:** National Crime Records Bureau data indicates an average of over 400 cases of workplace sexual harassment reported annually, though experts suggest this is only the tip of the iceberg.
- **Sectoral Vulnerability:** Women in the unorganized sector (including domestic workers) remain the most vulnerable, with a significant lack of awareness regarding Local Committees (LCs).
- **Legal Compliance Gap:** A 2024-25 survey revealed that while many large firms have Internal Committees (ICs), 53% of HR professionals still struggle with the full nuances of POSH Act implementation.

Need for Safeguarding Women at Workplace:

- **Constitutional Mandate:** Protecting women's rights under Articles 14, 15, and 21 is a non-negotiable legal obligation.
- E.g. The Supreme Court in 2023-24 emphasized in the Aureliano Fernandes case that serious lapses in SH Act enforcement violate constitutional guarantees of dignity.
- **Economic Empowerment:** A safe environment is critical for achieving the goal of Viksit Bharat, which targets 70% female workforce participation.
- E.g. Studies show that safety concerns are a primary reason for the declining LFPR in certain urban pockets of North India.
- **Retention of Talent:** Harassment leads to high attrition rates among women, draining the economy of skilled professionals.
- E.g. In the tech sector (2025), reports indicated women are more likely to exit mid-senior roles if POSH mechanisms are perceived as biased.
- **Inclusive Growth:** Ensuring safety in the unorganized sector is vital for the millions of domestic and agricultural workers who form the backbone of the economy.
- E.g. Recent 2025 government surveys highlighted that domestic workers in Delhi/NCR often lack knowledge of the District Officer's role in redressal.
- **Mental and Physical Well-being:** Harassment leads to severe psychological trauma, requiring a trauma-informed institutional response.
- E.g. The launch of Project Stree Manoraksha (2025) specifically targets the mental health of violence survivors, including those harassed at work.

Initiatives Taken:

- **SHe-Box Portal (2024 Revamp):** A centralized, multi-lingual digital platform for filing and tracking complaints across all sectors.
- **Mandatory Corporate Disclosure:** Amendments to the Company (Account) Rules now require companies to disclose the number of POSH cases in their annual Board Reports.
- **National Workplace Safety Pledge:** Administered by the MoWCD (2026) to push for a Zero-Tolerance culture within government and private organizations.
- **Handbook & Training:** Development of comprehensive modules with the Institute of Secretariat Training and Management (ISTM) available on the iGOT Karmayogi platform.
- **Judicial Oversight:** Ongoing monitoring by the Supreme Court to ensure State Governments conduct surveys on the constitution of Internal Committees.

Challenges Associated:

- **Procedural Awareness Gap:** Many employees are unaware of the 3-month limitation period or the existence of the Internal Committee.
- E.g. A 2024 report showed only 8% of workers were fully aware of their company's POSH policy details.
- **Fear of Retaliation:** Victims often fear blacklisting or losing their livelihood if they report a senior superior.
- E.g. In the sports sector (2024-25), high-profile cases highlighted how athletes feared reporting coaches due to career-ending consequences.
- **Ineffective Local Committees (LCs):** While ICs exist in big firms, LCs in districts for the unorganized sector are often non-functional or underfunded.
- E.g. Investigations in 2025 found several districts in Eastern India had not updated their LC member lists for years.
- **Digital Divide:** While the SHe-Box portal is a leap forward, women in rural unorganized sectors may lack the digital literacy to use it.
- E.g. Agricultural laborers in remote regions still rely on oral reporting, which is rarely documented in the SHe-Box repository.
- **Gender-Specific Limitations:** The Act only allows aggrieved women to file complaints, leaving out male and some transgender victims in specific contexts.
- E.g. 2025 legal debates in India have increasingly called for making POSH gender-neutral to protect all employees from harassment.

Way Ahead:

- **Universal Training:** Mandatory, periodic sensitization workshops for all employees, not just a one-time onboarding video.
- **Strengthening LCs:** State governments must ensure that Local Committees are well-funded and their contact details are publicized in every panchayat and district office.
- **Incentivizing Compliance:** Linking government contracts and subsidies to a firm's verified Safe Workplace rating on the SHe-Box portal.
- **Support for the Unorganized Sector:** Deploying mobile Safety Vans or awareness camps specifically for domestic and construction workers.
- **Strict Penalty Enforcement:** Implementing the provision for license cancellation for repeat offenders to signal that safety is a business priority.

Conclusion:

- The SH Act 2013 and the SHe-Box portal represent a robust legal and digital shield for women in India's workforce. However, the transition from compliance on paper to safety in practice requires proactive employer engagement and strict judicial oversight. Ensuring a harassment-free environment is not just a legal mandate but a prerequisite for India's journey toward inclusive and sustainable economic growth.

Biomaterials

- As global economies shift toward sustainable and cleaner processes for consumer products like plastics and textiles, biomaterials are ushering in a new era in the field of materials engineering.
- Materials engineering is the field that studies and develops the structure, properties, and processing of metals, ceramics, polymers, and nanomaterials to make products stronger, lighter, safer, and more efficient. It combines engineering, science, and technology to discover new materials and improve existing ones.

What is a Biomaterial?

- Biomaterials are substances that are derived entirely or partially from biological sources or produced through biological processes. They are developed to be used as alternatives to, or in conjunction with, conventional materials.
- Their use is steadily increasing in areas such as packaging, textiles, construction, and healthcare. Common examples include bioplastics made from plant sugars or starch, bio-based fibers used in the textile industry, and biodegradable surgical sutures and tissue structures used in the medical

field.

Categories of Biomaterials

Biomaterials can be broadly divided into three categories:

- **Drop-in biomaterials**: These are chemically similar to petroleum-based materials and can be directly used in existing production systems, such as bio-PET.
- **Drop-out biomaterials**: These have different chemical structures and require new processing techniques or post-use systems, such as polylactic acid (PLA).
- **Novel biomaterials**: These offer different and improved properties than traditional materials, such as self-healing materials, bioactive implants, and advanced composites.

India's Need for Biomaterials

- In the Indian context, biomaterials address multiple national priorities simultaneously.
- They can promote environmental protection, as well as foster industrial development, revenue generation, and increased farmer incomes.
- Domestic production of biomaterials in the country can reduce dependence on fossil fuel-based imports of plastics and chemicals.
- Additionally, new markets can open up for agricultural produce and crop residues, providing farmers with alternative sources of income beyond the food supply chain.
- As the global market shifts toward low-carbon and circular economy-based products, biomaterials will help Indian industry remain competitive on the export front.
- This sector also strengthens domestic policy commitments related to the ban on single-use plastics and climate change.

India at Present

- The biomaterials industry in India is rapidly emerging as a strategic and sustainable industrial opportunity, encompassing bioplastics, biopolymers, and other bio-derived materials.
- The bioplastics market size alone was estimated to be approximately $500 million in 2024 and is expected to remain on a strong growth trajectory in the coming years.
- The proposed PLA plant by Balrampur Chini Mills in Uttar Pradesh is one of the largest investments being made in this sector.
- Additionally, startups like Phool.co are converting flower waste from temples into useful biomaterials, while Praj Industries is building a demonstration-scale bioplastics plant.
- However, despite its abundant agricultural resources, India still has to rely on foreign sources for

some advanced technologies, especially when converting raw materials into high-value end products.

Global Scenario

- The European Union has implemented the Packaging and Packaging Waste Regulation (EU) 2025/40, which recognizes that compostable packaging has clear environmental benefits in certain applications.
- The United Arab Emirates is establishing itself as a global manufacturing hub by investing extensively in PLA projects. Emirates Biotech has selected Sulzer technology for a two-stage PLA plant with an 80,000-tonne-per-annum capacity, which is expected to begin operations in 2028. When fully operational, it will be the world''s largest PLA facility.
- The United States continues to be a leader in many transformative technologies involving biomaterials. Federal procurement policy, through the USDA''s BioPreferred program, is also encouraging this sector.

Challenges

- India has the opportunity to establish global leadership in the biomaterials industry, but it also faces challenges.
- If raw material supplies do not increase in tandem with growing demand, competition with food crops could increase.
- Similarly, excessive agricultural exploitation threatens to put pressure on water resources and lead to soil erosion.
- Furthermore, if waste management and composting infrastructure remains weak, the environmental benefits of biomaterials could be limited.
- Lack of coordination between agricultural, environmental, and industrial policies could slow adoption, and if timely action is not taken, India could remain dependent on imports while other countries are rapidly advancing.

Way Forward

- To fully capitalize on this opportunity, it is essential to expand biomanufacturing infrastructure, particularly fermentation and polymerization capabilities.
- Additionally, productivity of feedstocks derived from crops such as sugarcane, maize, and agricultural residues should be increased through advanced technologies.
- Investment in research and development, standardization, and innovation will be crucial for the

development of both drop-in and novel biomaterials.

- Clear regulatory definitions, appropriate labeling regulations, and post-use solutions, such as recycling or industrial composting, will also be essential to strengthen consumer and industry confidence.
- Government procurement policies, timely incentive schemes, and support for pilot projects and shared facilities can play a key role in reducing the risk of initial investment.
- If India strengthens policy coordination and technological investment in time, it will not only meet its domestic needs but also emerge as a global export hub for biomaterials.

Creative Industries as Growth Engines

- The creative industries are in the spotlight following the Union Budget 2026-27 and the Economic Survey 2025-26, which projected a requirement of 2 million professionals in the AVGC sector by 2030 and announced the establishment of 15,000 Content Creator Labs in schools.

What is the Orange Economy?

- The Orange Economy (a term coined by Iván Duque and Felipe Buitrago) refers to the ecosystem of activities where value is derived primarily from creativity, culture, and intellectual property.
- It bridges the gap between traditional heritage (arts, crafts, festivals) and modern digital industries (gaming, VFX, OTT platforms). In the Indian context, it is being hailed as the dawn of an era where imagination is a tradeable global commodity.

Key Stats on India's Creative Economy (2024-26):

- **Sectoral Valuation:** The media and entertainment (M&E) sector reached approximately ₹2.5 trillion (billion) in 2024, projected to hit ₹3.06 trillion by 2027.
- **Employment Engine: The** sector supports over 10 million livelihoods directly and indirectly, with creative occupations paying roughly 88% higher than non-creative roles.
- **Export Growth:** Creative services exports rose by 20% in 2023, contributing significantly to diversifying India's service basket beyond traditional IT.
- **Gaming Explosion:** India is now one of the world's largest gaming markets, with a revenue of ₹232 billion and a user base of nearly 500 million gamers.
- **VFX Intensity:** Modern Indian blockbusters now allocate up to 25-30% of total production costs specifically to visual effects.

Creative Economy as a Growth Engine:

- **Massive Job Creation for Youth:** The AVGC-XR sector is a labor-intensive digital industry that absorbs young talent from non-metro areas.
- E.g. The government's projection of 2 million new jobs by 2030 has led to the rapid expansion of private design and animation studios in Tier-2 cities like Pune and Indore.
- **Soft Power and Cultural Diplomacy:** Exports of Indian content shape global narratives and boost tourism.
- E.g. The global success of films like Project K and RRR has turned Indian cinematic locations into major tourism hubs for international audiences.
- **Multiplier Effect on Urban Economies:** Live entertainment and festivals stimulate hospitality, transport, and local retail.
- E.g. Massive stadium concerts in Ahmedabad and Navi Mumbai in late 2025 saw a 40% spike in local hotel bookings and short-term gig employment.
- **Technological Spillover:** Innovations in gaming and VFX often find applications in healthcare, education, and defense (Digital Twins).
- E.g. Indian AVGC firms are now using Unreal Engine (originally for games) to create immersive training simulations for Indian medical students.
- **Democratization of Opportunity:** Digital platforms allow creators from remote regions to monetize their talent directly.
- E.g. The Creator's Corner initiative on DD National has successfully mainstreamed micro-influencers from rural India into the national advertising ecosystem.

Key Initiatives Taken So Far

- **WAVES Summit (2025):** The World Audio Visual and Entertainment Summit created a global marketplace (WAVES Bazaar) for scripts and music rights.
- **IICT Mumbai:** The Indian Institute of Creative Technologies was established as a National Centre of Excellence to institutionalize AVGC-XR skilling.
- **Content Creator Labs:** Budget 2026 allocated ₹250 crore to set up labs in 15,000 secondary schools to introduce students to digital storytelling early.
- **Create in India Challenge:** A nationwide talent hunt across 33 categories that links winners to international platforms like the Tokyo and Madrid cultural festivals.

Challenges Associated with the Creative Economy:

- **The Platform Trap:** Creators are highly dependent on global algorithms that can demonetize or shadowban them without transparency.
- E.g. Recent policy shifts in global short-video platforms led to a sudden 30% revenue drop for many Indian micro-influencers.
- **IP Financing Gaps:** Creative MSMEs struggle to get bank loans because they lack physical assets (machinery/land) to use as collateral.
- E.g. Animation studios in Bengaluru often rely on high-interest private credit because banks do not yet fully recognize digital characters as valid collateral.
- **Skill-Industry Mismatch:** Many graduates know how to use software but lack fundamental storytelling and design principles.
- E.g. Industry leaders at the 2026 IGDC (India Game Developer Conference) noted that while India has button-pushers, there is a shortage of original game designers.
- **Infrastructure Bottlenecks:** High-end rendering and cloud computing costs remain prohibitive for small independent studios.
- E.g. Small Indian studios still outsource complex CGI rendering to overseas servers due to a lack of affordable local high-performance computing (HPC) clusters.
- **Regulatory Complexity for Live Events:** Organizers often need 10–15 separate clearances for a single concert, leading to delays and corruption.
- E.g. Several international music festivals planned for early 2026 were reportedly scaled back due to the complexity of navigating multi-agency local permissions.

Way Ahead:

- **Formalizing IP-Backed Lending:** Collaborate with RBI to create a framework for using copyrights and trademarks as collateral for institutional credit.
- **National AVGC Policy Implementation**: Finalize the Model State Policy to ensure uniform incentives for creative clusters across all Indian states.
- **AI-Native Creative Tools:** Invest in domestic AI tools for animation and dubbing to reduce the cost of content production and global localization.
- **Single-Window Clearance for Events:** Operationalize the proposed LEDC (Live Entertainment Development Cell) to streamline permissions for concerts and festivals.
- **Focus on Original IP:** Shift from being the back-office (outsourcing) of Hollywood to a creator of original Indian IP that can be licensed globally.

Conclusion:

- India's transition to a dominant Orange Economy represents a strategic evolution where imagination is organized into a scalable economic engine. By bridging the gap between classroom skilling and global market access, India is ensuring that its demographic dividend translates into a creative dividend. The next decade will see the Created in India tag become as globally synonymous with quality as Designed in California.

The Fertiliser Industry in India

- The Uttar Pradesh government has recently banned the sale of non-subsidised specialty fertilisers by urea manufacturers, citing tagging (forced cross-selling) concerns.
- This move has sparked a debate on the stifling nature of government controls in an industry already struggling with rigid price caps and distribution mandates.

About The Fertiliser Industry in India:

- The fertiliser industry is the backbone of India's food security, acting as a bridge between industrial manufacturing and agricultural productivity. While technically a commercial sector, it functions as a policy-supported backbone where the government dictates every major variable—from the price at which a product is sold to the specific district where a railway rake must be unloaded.

Key Data and Facts:

- **Massive Consumption:** In FY 2024-25, total fertiliser consumption stood at approximately 65.3 million tonnes (mt), with Urea alone accounting for roughly 40 mt.
- **Production Milestone:** In January 2026, India recorded its highest-ever monthly P&K (Phosphatic and Potassic) production of 15.76 lakh metric tonnes.
- **Fiscal Burden:** The fertiliser subsidy allocation for 2026-27 is earmarked at ₹1.71 lakh crore, reflecting the massive state expenditure required to keep prices low.
- **Import Dependency:** India remains heavily dependent on imports for raw materials, including 100% of its Potash and nearly 90% of its Phosphates.
- **Strategic Shift:** Nano-fertilisers (Nano Urea and Nano DAP) are being aggressively promoted through 300,000+ PMKSK centers to reduce the traditional subsidy bill.

Current Controls Governing the Industry:

- **Price Capping (Urea):** The MRP of urea has remained virtually frozen at ₹266.5 per 45-kg bag since 2012, regardless of rising input costs.
- E.g. Companies like NFL and IFFCO must sell at this price despite high global natural gas prices, recovering the difference as a subsidy.

- **Conditional Decontrol (NBS):** Under the Nutrient Based Subsidy (NBS), P&K fertiliser prices are technically free, but the Centre sets an indicative MRP.
- E.g. The ₹1,350 price tag for DAP has been maintained through flexible subsidy adjustments to prevent farmer backlash during global price spikes.

- **Movement Control (ECA):** Under the Essential Commodities Act, the Department of Fertilisers (DOF) prepares a strict Agreed Supply Plan for every company.
- E.g. A company cannot move a rake to a high-demand district in Punjab if the DOF's monthly plan has allocated that stock to Bihar.

- **Tagging & Sales Bans:** State governments exert ground-level control by banning or restricting the sale of non-subsidised products.
- E.g. The UP Government's 2026 ban on non-subsidised fertilisers prevents firms from selling premium products like calcium nitrate through their own networks.

- **Branding Standardization (ONOF):** The One Nation One Fertiliser scheme mandates that all subsidised fertilisers be sold under the single brand name Bharat.
- E.g. High-quality manufacturers like Chambal or Coromandel can only use 1/3rd of the bag space for their own brand, neutralizing brand value.

Implications of Excessive Control:

- **Soil Health Deterioration:** Fixed low prices for Urea lead to its over-application, skewing the N:P:K ratio to nearly 11:4:1 against the ideal 4:2:1.
- E.g. Excessive nitrogen use in Punjab and Haryana has led to soil salinity and declining crop responsiveness to fertilisers.

- **Stifled Innovation: When** companies are banned from selling premium, non-subsidised products, they lose the incentive to invest in R&D.
- E.g. The UP ban discourages firms from introducing high-efficiency specialty nutrients that could

promote fertigation and precision farming.

- **Negative Investor Sentiment:** Constant policy flip-flops and retrospective bans deter private and foreign investment in domestic manufacturing.
- E.g. Analysts note that investment in new urea plants remains stagnant because manufacturers recover only a fraction of costs at the retail point.

- **Fiscal Fragility:** The government's subsidy bill is highly sensitive to global shocks, creating a subsidy trap that drains the national exchequer.
- E.g. The 2025-26 subsidy overshoot (rising from ₹1.57L cr to ₹1.86L cr) was driven by geopolitical tensions affecting raw material imports.

- **Operational Inefficiency:** Micromanagement of logistics often leads to artificial shortages or black-marketing at the local level.
- E.g. In late 2025, reports from Chitrakoot (UP) showed farmers in long queues due to local distribution bottlenecks despite adequate national stock.

Way Ahead:

- **Bring Urea under NBS:** Move Urea into the Nutrient Based Subsidy framework to correct price distortions and encourage balanced nutrient use.
- **Direct Benefit Transfer (DBT) to Farmers:** Shift the subsidy from the manufacturer to the farmer's bank account, allowing market forces to determine retail prices.
- **Decriminalize the Sector:** Remove non-subsidised fertilisers from the Essential Commodities Act to reduce the Inspector Raj and encourage ease of doing business.
- **Incentivize Green Fertilisers:** Introduce a Production Linked Incentive (PLI) for Nano-fertilisers and Green Ammonia to reduce import and subsidy dependence.
- **Rationalize Taxation:** Address the inverted GST duty structure (where raw materials are taxed higher than the finished product) to improve company cash flows.

Conclusion:

- The fertiliser industry remains a relic of the Permit Raj, where government control over pricing and distribution has created a cycle of soil degradation and fiscal strain. While the recent UP ban aims to protect farmers from tagging, it ultimately sacrifices long-term innovation and investor confidence for short-term administrative ease. A transition toward market-linked pricing and

direct farmer support is essential to ensure India's Aatmanirbhar fertiliser future.

Viksit Bharat 2047: Redefining Foreign Policy

- As multilateralism erodes under power politics, India must rethink strategic autonomy, build self-strength, diversify trade, and anchor diplomacy in Viksit Bharat 2047.

Shifting Global Dynamics

- **UN Leadership:** India historically led the Global South at the UN, shaping post-colonial rules. E.g., 1992 climate negotiations.
- **China Influence:** Since 2010, China has headed four major UN agencies and exceeds Western aid, reducing India's institutional sway.
- **US Withdrawal:** The U.S. exited 31 UN bodies and rejected WTO dispute settlements (2019), weakening multilateral governance.
- **Trade Expansion:** China is the largest trading partner of 120 countries, backed by the Belt and Road and diversified exports.
- **India Challenges:** As a potential 3rd-largest economy, India faces a U.S.-dominated global order and must reformulate foreign policy.

Evolution of Strategic Autonomy

- **Global Leadership:** India's historic Global South leadership gave it outsized influence, but weakened international institutions now limit its voice.
- **Cold War:** Strategic autonomy guided India during the Non-Aligned Movement, but lost relevance after the Soviet Union collapsed in 1991.
- **Policy Choices:** India joined the U.S.-led Quad in 2017 and opted for Russia's S-400 missiles over U.S. Patriot systems in 2018.
- **Russia Ties:** India relies on Russia for advanced military technology, a partnership tested by U.S. attempts to influence strategic alignments.
- **Swing State:** With China's rise, U.S. analysts view India as a "swing state" rather than fully strategically autonomous, reflecting multipolar pressures.

Fragmentation of Multilateral Trade

- **Asymmetric Order:** Global trade is increasingly unequal, driven by "America First" policies,

unilateral tariffs, and selective market access.

- **Tariff Asymmetry:** Under the India–U.S. framework, India agreed to double industrial imports while the U.S. retains ~18% tariffs, unlike EU FTAs eliminating ~70% tariff lines.
- **China Leverage:** China exploited WTO rules to emerge as a manufacturing hub and is now the top trading partner for over 120 countries.
- **Growth Pressures:** India faces constrained growth space amid intensifying U.S.–China rivalry and reduced multilateral safeguards.
- **Supply Realignment:** Friend-shoring, Quad, AUKUS, and tech controls signal a shift from WTO-centric multilateralism to minilateral power blocs.

India's Adaptive Foreign Policy

- **Norm-to-Power Shift:** The erosion of UN-centric multilateralism compels India to move from rule-shaping leadership to pragmatic power-based diplomacy.
- **Autonomy Recast:** Strategic autonomy transforms into issue-based alignments, balancing the Quad, Russia ties, and China engagement to protect national interests.
- **Trade Realignment:** Asymmetric global trade and U.S.–China rivalry force India to diversify markets, pursue FTAs, and embed trade diplomacy within foreign policy.
- **Developmental Diplomacy**: Foreign policy increasingly serves domestic goals, technology access, industrial capacity, and growth, anchored in the vision of Viksit Bharat 2047.

India's Pathways to Global Leadership

- **Youth Advantage:** India's young population, exemplified by nearly half of Silicon Valley's workforce, can drive a cyber and AI superpower.
- **Policy Shift:** Foreign policy must evolve from 'strategic autonomy' to Viksit Bharat 2047, integrating trade and technology diplomacy. E.g., Quad and S-400.
- **Endogenous Capability:** India should quietly develop domestic industrial and technological strength, similar to the early 20th-century U.S. and China. E.g., Make in India.
- **Trade Diversification:** Expand exports and FTAs with Asia and Africa to reduce U.S. dependence and enhance economic resilience. E.g., ASEAN and AfCFTA.
- **Regional Incentives:** Treat Pakistan as a policy partner using economic tools like water-sharing, IP pipeline, and trade agreements. E.g., Kashmir water, Iran-Pakistan-India pipeline.
- **BRICS Leadership:** Reposition BRICS as an economic cooperation bloc and integrate digital currencies for smoother cross-border trade and remittances. E.g., digital rupee and cross-border payments.

- "In a world where power trumps rules," India's foreign policy must shift from managing alignments to shaping outcomes. Anchored in Viksit Bharat 2047, India must "build from within to lead without," turning diplomacy into a driver of national transformation.

India–France Special Global Strategic Partnership

- French President Emmanuel Macron visited India, to participate in the AI Impact Summit and inaugurate the 2026 India-France Year of Innovation.
- During this visit, both nations elevated their bilateral ties to a "Special Global Strategic Partnership" to guide cooperation until 2047.

About India–France Special Global Strategic Partnership:

- The "Special Global Strategic Partnership" is a high-level diplomatic upgrade that shifts the relationship from sectoral cooperation to a comprehensive, long-term alliance aimed at global stability.

It focuses on:

- **Strategic Autonomy:** Strengthening the sovereignty and independent decision-making of both nations.
- **Global Governance:** Acting as a force for global good to address macroeconomic imbalances and climate crises.
- **Security & Innovation:** Deepening the co-development of advanced technologies (AI, Space, Nuclear) while securing resilient, trusted supply chains.

History of India-France Relations:

- **Early Foundations (1947):** India established diplomatic relations with France immediately upon independence, sharing a vision of non-alignment and sovereignty.
- **Strategic Milestone (1998):** France was the first Western power to sign a Strategic Partnership with India and notably did not impose sanctions following India's nuclear tests.
- **Nuclear Cooperation (2008):** France was the first country to sign a civil nuclear agreement with India after the NSG waiver, highlighting deep trust in high-tech sectors.
- **Horizon 2047 Roadmap:** Adopted in 2023, this plan charts the course for the next 25 years, coinciding with India's 100th year of independence.
- **Recent Reciprocity:** The relationship is marked by high-level honors, such as Prime Minister of

India being the Guest of Honor at Bastille Day (2023) and President Macron attending India's Republic Day (2024).

Key Agreements under the New Partnership:

- **Year of Innovation 2026:** Launching a series of high-impact collaborations in AI, healthcare, and sustainable development across both nations.
- **Defence Industrial Roadmap:** Focus on the co-production of fighter jet engines (Safran-HAL) and the procurement of 26 Rafale-Marine jets.
- **Small Modular Reactors (SMRs):** A commitment to co-develop SMRs and Advanced Modular Reactors (AMRs) to bolster India's 100 GW nuclear target.
- **Indo-Pacific Synergy:** Strengthening the Indo-Pacific Triangular Development Cooperation to support third-country projects in health and digital public infrastructure.
- **AI & Digital Health:** Establishing a research centre involving AIIMS New Delhi and the Paris Brain Institute to integrate AI into healthcare.
- **Space Autonomy:** Expanding cooperation in human spaceflight, satellite launchers, and space situational awareness through the CNES-ISRO partnership.
- **Migration & Mobility:** Introducing visa-free transit for Indian nationals through French airports (6-month pilot) and targeting 30,000 Indian students in France by 2030.

Challenges Associated with the Partnership:

- **Divergent Views on Global Conflicts:** While both seek peace, their specific approaches to major conflicts can differ based on regional priorities.
- E.g. India's nuanced stance on the Ukraine war differs from the more direct Western condemnation, requiring careful diplomatic balancing during joint statements.

- **Trade and Regulatory Barriers:** Complexities in finalizing broad trade agreements can slow down economic integration.
- E.g. Long-standing hurdles in the India-EU FTA negotiations often stem from differing standards on labor, environment, and data privacy.

- **Implementation Delays in Nuclear Energy:** High-tech projects often face prolonged timelines due to technical and liability issues.
- E.g. The Jaitapur Nuclear Power Project has seen decades of discussions without final ground breaking due to civil nuclear liability concerns.

- **Technological Protectionism:** Sharing sensitive military source codes or high-end engine tech remains a hurdle despite the Make in India push.
- E.g. Challenges in the full Transfer of Technology (ToT) for jet engines often require intense high-level political intervention to resolve.

- **Rising Regional Instability:** Conflict in the Middle East can disrupt planned connectivity projects.
- E.g. Security concerns in the Red Sea and surrounding areas pose direct threats to the viability of the India-Middle East-Europe Economic Corridor (IMEC).

Way Ahead:

- **Operationalizing IMEC:** Prioritize the first Ministerial Meeting in 2026 to turn the India-Middle East-Europe corridor into a physical reality.
- **Democratizing AI:** Work together to bridge the global AI divide, ensuring developing nations have access to secure and trustworthy AI tools.
- **UNSC Reforms**: Intensify joint lobbying for the reform of the UN Security Council, with France actively backing India's permanent membership.
- **Green Energy Transition:** Leverage the International Solar Alliance (ISA) to fund and train personnel in third-world countries for climate resilience.
- **Deepening People-to-People Ties:** Use the International Classes initiative to make French education more accessible to Indian students from diverse backgrounds.

Conclusion:

- The elevation to a Special Global Strategic Partnership marks a transformative shift from buyer-seller dynamics to a collaborative alliance for global security and innovation. By aligning the Horizon 2047 roadmap with shared democratic values, India and France are positioning themselves as the twin pillars of a stable, multipolar world.

White Revolution 2.0: Key Drivers & Challenges

- The Central Government launched Cooperative-led White Revolution 2.0 to expand dairy cooperatives, boost rural employment, and strengthen women's participation.

Historical Background

What is White Revolution in India?

- On January 13, 1970, India''s National Dairy began **Operation Flood**, the greatest dairy development initiative in the world.
- It made India, a country with a milk shortage, the world''s top producer of milk, surpassing the **United States of America in 1998.**
- It was started to aid farmers in development by allowing them to manage the resources they produce.
- All of this was made possible by mass production, which has come to be known as the **"White Revolution."**
- The technology that completely transformed India''s organized dairy industry was the production of skim milk powder from buffalo milk. **Harichand Megha Dalaya** was the one responsible for making this happen.
- The dairy cooperative Amul''s Anand Pattern Experiment was the key to the program''s success.
- **Dr. Verghese Kurien**, the chairman of the National Dairy Development Board, was in charge when Operation Flood began.
- Dr. Kurien advanced the cooperatives to support the revolution with his exemplary management abilities.
- He is credited with being the **"Father of the White Revolution"** in India.
- Every year on November 26th, India observes National Milk Day, which is the birth anniversary of Dr. Varghese Kurien.

- **Institutional Foundation:** The National Dairy Development Board (1965), with Verghese Kurien as Chairman, laid the institutional and strategic base for Operation Flood.
- **White Revolution:** Operation Flood (White Revolution 1.0) made India the world's largest milk producer by 1998; White Revolution 2.0 is now a modernised cooperative expansion with a gender focus.

White Revolution - Objectives

- The operation flood was founded on the cooperatives of local milk farmers.
- They obtained milk and offered the services while making the most use of contemporary technology and management.

The following are the objectives of the White Revolution:

- Increasing production to produce a flood of milk;
- Increase in rural incomes;
- Reasonable costs for customers; and
- A consistent supply of milk in exchange for a rise in income and a decline in poverty among participating farmers.

White Revolution - Phases

Phase I

- Phase 1 of the white revolution (aka Operation Flood) began in July 1970 to establish dairy cooperatives in 18 milk sheds across ten states and connect them to the four best metropolitan markets.
- By 1981, India had 13,000 village dairy cooperatives covering 15,000 farmers.

Phase II

- The second phase of the operation, based on the designs of phase 1, aided dairy development programs in Karnataka, Rajasthan, and Madhya Pradesh.
- Urban markets also boosted the number of milk outlets to 290 during Phase II (1981–1985), which saw a rise in the milk shed numbers from 18 to 136.
- A self-sustaining network of 43,000 village co-operatives with 4,250,000 milk producers was in place by the end of 1985.
- Along with direct milk marketing by producers'' cooperatives, domestic milk powder production increased.

Phase III

- Phase III gave dairy cooperatives the opportunity to build and develop the infrastructure needed to acquire and market rising milk quantities.
- Co-operative members'' access to feed, artificial insemination, and veterinary first-aid services were increased, along with member education efforts.
- Phase III of Operation Flood consolidated India''s dairy cooperative movement, adding 30,000 new cooperatives to the 42,000 already established during Phase II.
- Milksheds peaked at 173 in 1988-89, with the number of female members and Women''s Dairy Cooperative Societies significantly increasing.
- Phase III placed a greater emphasis on animal health and nutrition research and development.

- Innovations such as the Theileriosis vaccine, bypass protein feed, and urea-molasses mineral blocks all contributed to increased milch animal productivity.

White Revolution - Role of Amul

- Verghese Kurien, Shri Tribhuvandas Kishibhai Patel, and Harichand Megha Dalaya, collectively known as the **Amul trinity**, were instrumental in the success of this venture.
- Amul is an Indian dairy cooperative association with headquarters in the **Gujarat city of Anand**.
- It was established in 1946 and is a cooperative brand run by the Gujarat Co-operative Milk Marketing Federation Ltd. (GCMMF).
- India''s "White Revolution," sparked by Amul, made it the world''s top producer of milk and dairy products.
- Prime Minister Lal Bahadur Shastri appointed Verghese Kurien, the CEO, and founder of Amul, to lead NDDB.
- The success of Amul has inspired comparable movements in other Indian agricultural products.
- These industries create standards for businesses around the world to follow and adapt, excelling in fields like branding, marketing, and management.
- Amul has gradually developed itself as a laboratory, producing significant inventions and developing its own technologies, increasing its competitiveness against multinational corporations.
- Building on the solid basis its visionary leader laid, Amul Cooperative Model has progressively increased the number of products in its lineup while also adding new ones.
- Other dairy cooperatives like **Nandini** in Karnataka, **Aavin** in Tamil Nadu, and **Verka in Punjab** look forward to Amul as one of India''s most well-known food brands for inspiration.

Historical Background

- **Institutional Foundation:** The National Dairy Development Board (1965), with Verghese Kurien as Chairman, laid the institutional and strategic base for Operation Flood.
- **White Revolution:** Operation Flood (White Revolution 1.0) made India the world's largest milk producer by 1998; White Revolution 2.0 is now a modernised cooperative expansion with a gender focus.

India's Milk Production Leadership

- **Global Leader**: India ranks first in milk production, contributing over 25% of global output.
- **Record Output:** Milk production reached 239.3 million tonnes in 2023–24.

- **Decadal Growth:** Output rose 63.56% from 146.3 MT (2014–15) to 239.3 MT (2023–24).
- **Growth Rate:** India's milk production grew at 5.7% annually, far above the global 2%.
- **Per Capita Supply:** Milk availability stands at 471 g/person/day vs. the global average of 322 g.

White Revolution 2.0: Key Features

- **Aim:** White Revolution 2.0 targets a 50% rise in cooperative milk procurement over five years.
- **Procurement:** Cooperative milk procurement is projected to reach 1,007 lakh kg/day by 2028–29.
- **Funding Mechanism:** The initiative is financed under the National Dairy Development Programme (NPDD) 2.0, implemented by the Department of Animal Husbandry and Dairying.
- **Institutional Expansion:** Setting up and strengthening of around 1.20 lakh new and existing Dairy Cooperative Societies (DCS), Multipurpose Dairy Cooperative Societies (M-DCS) and Multipurpose Primary Agricultural Credit Societies (M-PACS).
- **New Cooperatives:** 75,000 new DCSs will be established in uncovered areas to improve farmer market access and incomes.
- **Capacity Strengthening:** 46,422 existing DCSs will be upgraded to enhance procurement efficiency and nutritional availability.
- **Infrastructure Support:** Provision of Automatic Milk Collection Units (AMCU), Data Processing Milk Collection Units (DPMCU), milk testing units and bulk milk coolers will modernise collection & quality.
- **Women Workforce:** Nearly 70% of dairy farm labour comprises women, engaged in milking, feeding and animal care.
- The National Programme for Dairy Development: Launched in 2014 and restructured in 2021, develops infrastructure for milk procurement, processing, and marketing nationwide.

Key Drivers of India's Dairy Sector

- **Cooperative Networks:** NDDB and ~1.7 lakh Dairy Cooperative Societies (DCSs) organise milk procurement, processing, and marketing.
- **Women Workforce:** ~70% of dairy labour, driving productivity, income, and empowerment.
- **Rising Domestic Demand:** Milk consumption ~471 g/person/day; urbanisation and dietary changes fuel demand.
- **Technological Adoption:** Milk testing units, bulk milk coolers, and Automatic Milk Collection Units improve quality and efficiency.
- **Genetic Improvement:** Crossbreeding and indigenous breed conservation enhance per-animal milk yield. E.g., 8.55 kg/day for crossbred cattle.

- **Market Linkages:** Expanding organised market channels reduces dependence on middlemen and ensures fair prices.

Socio-Economic Significance of the Dairy Sector

- **Rural Income:** White Revolution 2.0 targets 50% rise in milk procurement from 660 → 1,007 lakh kg/day by 2028–29, boosting small farmer earnings.
- **Women Empowerment:** Women form ~70% of the dairy workforce; cooperatives enhance their income control and decision-making roles.
- **Nutritional Security:** Ensures consistent milk availability (~471 g/person/day), improving protein intake and reducing malnutrition in children.
- **Economic Output:** Dairy contributes ~40% of the agriculture-livestock sector output (~Rs 11.16 lakh crore) and livelihoods for 8.5 crore people.
- **Regional Growth:** Expansion in UP, Odisha, Rajasthan, and Andhra Pradesh reduces coverage gaps (<10% in some regions) and strengthens rural development.

Government Initiatives for the Development of the Dairy Sector

- **Rashtriya Gokul Mission:** It is a Central Sector Scheme launched in 2014 to enhance milk productivity through genetic improvements and conservation of indigenous cattle breeds.
- **NPDD:** The National Programme for Dairy Development, launched in 2014 and restructured in 2021, develops infrastructure for milk procurement, processing, and marketing nationwide.
- **NLM:** The National Livestock Mission, realigned in 2021–22, promotes employment, entrepreneurship, and productivity in the livestock sector.
- **LHDCP:** The Livestock Health and Disease Control Programme (2024–26) enhances animal health through vaccination and disease prevention.
- **AHIDF:** The Animal Husbandry Infrastructure Development Fund, launched in 2020 under Atmanirbhar Bharat, promotes investment in dairy processing and value-addition infrastructure.

Challenges

- **Coverage Gap:** Many states, such as WB, Assam, Odisha, and Jharkhand, and the Northeast (<10% villages), have lower cooperative coverage than Gujarat, Kerala, and Sikkim (>70%).
- **Infrastructure Deficit:** Most DCSs lack modern milk collection, testing, and chilling units, resulting in losses and quality deterioration.
- **Market Vulnerability:** ~Two-thirds of milk sold through the unorganised sector causes price fluctuations and low farmer returns.

- **Climate Stress:** Heat waves, water scarcity, and feed shortage reduce productivity and threaten livelihoods.
- **Women's Barriers:** Despite ~70% workforce participation, women face limited access to credit, training, and decision-making opportunities.

Way Forward

- **Productivity Boost:** Promote crossbreeding, veterinary services, and feed/fodder management to increase per-animal yield and resilience.
- **Women Strengthening:** Support women-led cooperatives with training, credit access, and formal recognition in income and governance.
- **Market Stabilisation:** Increase cooperative share in organised marketing, promote value-added products like cheese, ghee, yoghurt.
- **Policy Support:** Implement NPDD 2.0 effectively, provide financial assistance, training, and state-specific action plans.
- **Climate Practices:** Adopt sustainable fodder, water-efficient, and solar-powered chilling systems with disease prevention and waste management.
- White Revolution 2.0 can become India's "second dairy leap" if cooperative deepening, region-specific strategies, climate-resilient dairying, women-led governance, and organised market integration converge to deliver inclusive, nutritious, and sustainable rural growth.

UPSC Prelims 2025 PYQ

1. Consider the following statements about the Rashtriya Gokul Mission:

1. It is important for the upliftment of rural poor as majority of low producing indigenous animals are with small and marginal farmers and landless labourers.
2. It was initiated to promote indigenous cattle and buffalo rearing and conservation in a scientific and holistic manner.

Which of the statements given above is/are correct?

(a) I only
(b) II only
(c) Both I and II
(d) Neither I nor II

Option c is the correct answer.

- The Rashtriya Gokul Mission was initiated by the Government of India under the Department of

Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry & Dairying.

- **Statement 1 is correct:** The Rashtriya Gokul Mission (RGM) is crucial for upliftment of rural poor as more than 80% low producing indigenous animals are with small and marginal farmers and landless labourers. The scheme is important in enhancing milk production and productivity of bovines to meet growing demand of milk and making dairying more remunerative to the rural farmers of the country.
- **Statement 2 is correct:** The Rashtriya Gokul Mission was launched to promote the rearing and conservation of indigenous cattle and buffalo breeds in a scientific and holistic manner. The mission aims to enhance the productivity of native breeds, preserve their genetic diversity, and improve rural livelihoods. It focuses on the development of high-genetic merit animals through modern breeding technologies, establishment of Gokul Grams (cattle care centers), and support for traditional animal husbandry practices.

India AI Impact Summit 2026: New Delhi Declaration

- India wrapped up the India AI Impact Summit 2026 on February 21, with its organisers describing it as the world's **"largest and most historic"** AI summit. The AI Impact Summit 2026 marked the first time an AI summit was held in the Global South.The summit achieved significant diplomatic heft and positioned New Delhi as a convening power in global AI governance discussions, producing a declaration with broader country participation than any previous summit in the series. Therefore, it is crucial to understand not only the key highlights of the summit but also artificial intelligence and India's efforts in this field.
- Today, artificial intelligence (AI) has become a buzzword. India has also launched an AI mission and promised to make heavy investments in an indigenous AI language model.

What is Artificial Intelligence?

- Artificial Intelligence is the ability of machines, especially computers, to perform tasks that typically require human intelligence. These tasks include things like understanding language, recognising patterns, solving problems, and making decisions. Essentially, AI enables machines to think and learn from experience, just like humans do, but often at a much faster pace with access to vast amounts of data.
- Breakthroughs in computational power and big data accelerated AI's capabilities in image and speech recognition, natural language processing, and autonomous systems. Today, AI continues to

evolve, integrating into various industries, driving innovation, and transforming everyday life.

AI can be classified into two types:

- Artificial Narrow Intelligence (ANI) also known as weak AI and Artificial General Intelligence (AGI) also referred to as strong AI. ANI is designed for specific tasks and excels within a narrow domain. Examples include virtual assistants like Siri, recommendation systems on platforms like Netflix, and image recognition software. ANI systems are highly specialised and cannot transfer their expertise to unrelated tasks.

- **AGI** aims to replicate human cognitive abilities, enabling it to perform any intellectual task a human can do. AGI would possess general reasoning skills, understand context, and adapt to new situations across various domains. It would be capable of autonomous learning and problem-solving without requiring task-specific programming.

What are the key takeaways of the India AI Impact Summit 2026?

- The AI Impact Summit 2026 marked the first time the AI Summit was held in the Global South, following previous events in Seoul and Paris. The theme of the summit was **Sarvajana hitaya, Sarvajana sukhaya — welfare for all, happiness for all**.

The three main goals of the AI Impact Summit 2026 were:

- leveraging AI to empower people and promote innovation.
- Projecting India as the service provider for AI for the whole world
- Democratising access to compute, datasets, and algorithms.

Global AI Governance

- Four summits, four years — tracking the evolution of global AI priorities
- **From Safety to Solutions:** How the AI Summit Agenda Has Shifted
- Bletchley Park, UK- AI Safety Summit Nov 2023
- **Focus:** Risk & Safety. 28 countries signed the **Bletchley Declaration**, identifying catastrophic AI risks and laying the groundwork for global safety standards.
- Seoul AI Summit Seoul- May 2024- South Korea
- **Focus:** Innovation & Inclusivity. Safety remained on the table, but discussions expanded to AI''s economic potential and the need for equitable global access.
- Paris AI Action Summit Paris, France Feb 2025

- **Focus:** Implementation & Economy. PM Modi co-chaired. Emphasis shifted to practical deployment and economic opportunity, with safety concerns largely set aside.
- India-AI Impact Summit (First time in Global South)- New Delhi, India- Feb 16–20, 2026
- **Focus:** People, Planet, Progress. India centres the conversation on on-ground, local solutions — pitching actionable AI for the Global South over binding regulations.

- It comprised seven working groups, termed **'chakras',** that covered topics such as: **'Resilience, Innovation, and Efficiency,' 'Human Capital,' 'Safe & Trusted AI', 'Science', 'Democratising AI Resources', 'Inclusion for Social Empowerment', and 'AI for Social Good & Economic Development'.**

The key takeaways of the summit are:

(i) New Delhi Declaration on AI Impact: The key outcome document of the five-day India AI Impact Summit, the New Delhi Declaration on AI Impact, so far have been signed by 88 countries and international organisations, including the United States, China, France, Australia and the UK. Through the declaration, India has maintained the focus on its key pitch ahead of the AI Summit — **"democratising" AI,** while respecting the sovereignty of countries.

- — The declaration sets a number of voluntary frameworks and platforms that countries have said they will participate in, to share AI resources, use cases, and expertise, among other things.

(ii) 'MANAV' vision: During the summit, PM Modi unveiled India's AI vision 'MANAV', which encompasses moral and ethical systems, accountable governance, and national sovereignty. He outlined a nuanced approach to AI not as an autonomous force driven solely by data and algorithms, but as an extension of human aspirations, ethics, and dignity.

- **MANAV stands:**

M– moral and ethical systems: AI should be based on ethical guidance.
A– accountable governance means transparent rules, robust oversight;
N– national sovereignty means whose data, his right.
A– accessible and inclusive means AI should be a multiplier, not a monopoly.
V– valid and legitimate means AI should be lawful and verifiable".

(iii) India-America Connect Initiative: At the summit, Google CEO Sundar Pichai announced a new initiative called the **India-America Connect Initiative**. The initiative aims to increase AI connectivity between India, the US and multiple locations across the Southern Hemisphere,

delivering new sub-scale cable routes.

- The project will establish a new international **subsea gateway in Visakhapatnam**; three new subsea paths connecting India to Singapore, South Africa and Australia; and four strategic fiber-optic routes to boost network connectivity between the US, India and multiple locations across the Southern Hemisphere. This builds on Google's ongoing subsea cable projects across the Pacific and Africa, it said in a press release.

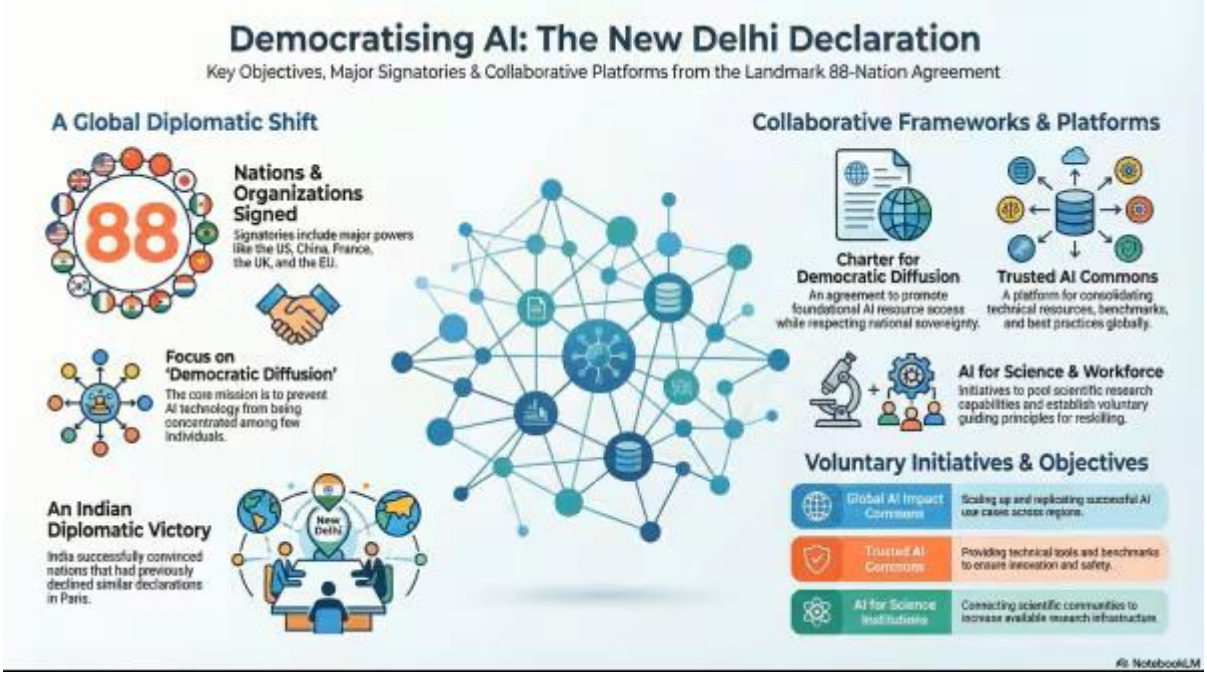
(iv) Prime Minister Modi has outlined three key suggestions for the ethical and responsible use of artificial intelligence.

- First, Modi called for a global trusted data framework that respects data sovereignty.
- Second, he stressed transparency in AI systems, advocating for what he described as a **"glass box" approach**. "We need a glass box approach instead of a black box, where safety rules can be viewed and verified," he said, adding that this would strengthen accountability and ethical business practices.
- Third, referring to the **"paperclip problem" often cited in AI research**, Modi warned about unchecked machine objectives. "If a machine is given the goal of simply making paperclips, it will continue to do so, even at the cost of devouring all the world's resources. Therefore, AI requires clear human values and guidance," he said.

(v) Qualcomm Technologies has announced a strategic collaboration with the **Anusandhan National Research Foundation** to strengthen India's research ecosystem in science, engineering and next-generation technologies. The focus areas include AI systems, advanced wireless technologies and next-generation computing.

(vi) Adobe has announced free access to Acrobat, Firefly AI, and over 20 Creative Cloud apps for students in 15,000 schools and 500 colleges under the government's Content Creator Labs initiative. This initiative was announced in the Union Budget 2026 to boost the orange economy in India.

(vii) Gnani.ai has announced the launch of **Vachana STT**, a foundational, enterprise-grade Indic speech recognition model trained on over 1 million hours of real-world voice data spanning 1,056 domains. Vachana STT is the first model released under Inya VoiceOS, a sovereign AI model stack being built as part of the India AI Mission.



What steps has India taken to promote and integrate AI?

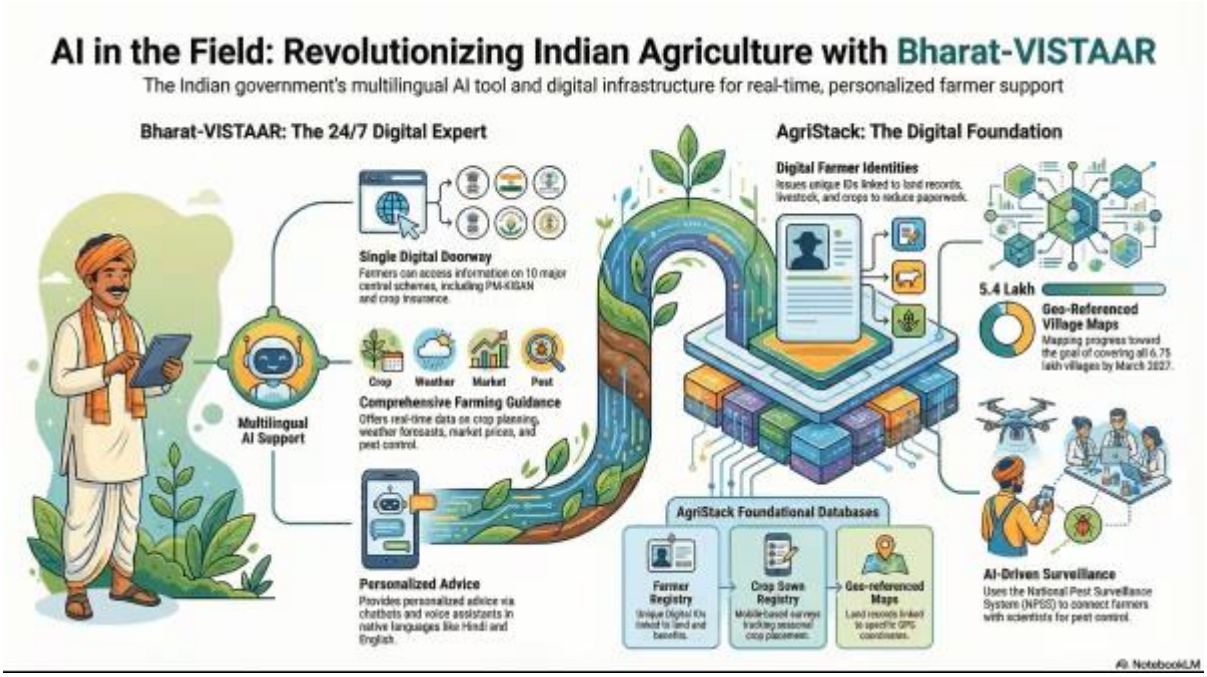
- From time to time, the government has introduced various initiatives to promote and integrate AI across sectors. In the Union Budget 2026–27, ₹1,000 crore was allocated to the IndiaAI Mission (FY26–27) to continue support for domestic AI R&D and compute infrastructure. To further encourage long-term investments, Budget also proposed a **tax holiday until 2047** for foreign companies **providing cloud services globally** using data centre infrastructure based in India. The long-term policy framework for data centres up to 2047 positions India among the leading global destinations for AI and cloud infrastructure.
- **IndiaAI Mission:** The IndiaAI Mission seeks to create a comprehensive ecosystem that encourages AI innovation by democratising computing access, improving data quality, developing indigenous AI capabilities, attracting top AI talent, facilitating industry collaboration, providing startup risk capital, ensuring socially impactful AI projects, and promoting ethical AI — This mission promotes the responsible and inclusive growth of India's AI ecosystem through the following seven pillars:

i. IndiaAI Compute Capacity
ii. IndiaAI Innovation Centre
iii. IndiaAI Datasets platform (AIKosh)
iv. IndiaAI Application development initiative
v. IndiaAI Future skills
vi. IndiaAI Startup Financing
vii. Safe and Trusted AI

— Launched in 2024, the mission has made strong progress in expanding the country's computing infrastructure. From an initial target of 10,000 Graphics Processing Units (GPUs), India has now achieved 38,000 GPUs, providing affordable access to world-class AI resources.

- **Bharat-VISTAAR:** Union Agriculture Minister Shivraj Singh Chouhan launched the Bharat-VISTAAR (Virtually Integrated System to Access Agricultural Resources), an AI-powered multilingual tool designed to provide farmers with relevant information in Jaipur on Tuesday (February 17).

  — It is an AI-powered multilingual tool that provides information to farmers in their native language through mobile or a simple phone call. The tool offers guidance on crop planning, agricultural practices, pests, weather forecasts, markets, scheme information, eligibility, applications, and grievances. It serves as a single "digital doorway" for farmers to access required information. BharatVistaar will be available 24 hours a day as a **'digital agriculture expert'.**



- **Adi Vaani:** The Ministry of Tribal Affairs in September last year rolled out the beta version of 'Adi Vaani', an AI-based translation tool that will serve as a foundation for large language models dedicated to tribal languages. Made using AI and efforts of academicians and educators proficient in tribal languages, the app will translate Hindi and English to tribal languages and vice-versa, and also aims to help digitize and preserve these languages.

- **BharatGen:** It is a pioneering generative AI effort that aims to transform public service delivery and increase citizen involvement by establishing a set of basic models in language, speech, and computer vision.
- — BharatGen will provide generative AI models and applications as a public utility, focusing on India's socio-cultural and linguistic diversity. It aims to address India's greater concerns, such as social fairness, cultural preservation, and linguistic variety, while also guaranteeing that generative AI reaches all sectors of society.
- — BharatGen connects with Atmanirbhar Bharat's goal by developing foundational AI models exclusively for India. It will support both text and speech, ensuring coverage of India's unique linguistic environment.

- **BHASHINI:** Launched in July 2022 under the **National Language Technology Mission**, BHASHINI is an AI-based language translation tool designed to facilitate real-time translation of Indian languages to establish a National Public Digital Platform for languages and increase the amount of content available in Indian languages.
- — It aims to **provide translation services in 22 scheduled Indian languages** to break through linguistic barriers and enable people to access digital services smoothly. The BHASHINI project is designed to integrate technological advancements in governance with multiple language integration, fostering national integration and creating a more inclusive society by adopting artificial intelligence tools.

- **SabhaSaar:** On the occasion of Independence Day last year, an AI-powered tool named 'SabhaSaar' was rolled out in Tripura and thereafter made available to other states. 'SabhaSaar' leverages the power of AI to generate structured minutes of meetings from gram sabha videos and audio recordings.
- — It will bring uniformity in minutes of the gram sabha meetings across the country. Panchayat officials can use their e-GramSwaraj login credentials to upload video/audio recordings on 'SabhaSaar'.
- — 'SabhaSaar' is built on Bhashini. The tool generates a transcription from a video or audio, translates it into a chosen output language, and prepares a summary. It enables transcription in all major Indian languages like Hindi, Bengali, Tamil, Telugu, Marathi and Gujarati, in addition to English.

- **Chitralekha:** It is an open source platform for video subtitling across various Indic languages, using ML model support. It offers support for multiple input sources, transcription generation process and voice over.

What challenges and concerns are associated with the rapid growth of AI?

- In recent years, AI has become an integral part of human lives and is increasingly shaping our daily interactions with the world. However, there are some concerns associated with it.

Power consumption and grid stress

- AI operates through a complex interdependence between software, hardware and energy. It requires **large data centers** that operate continuously to train, deploy, and update AI models in real time. These data centers are intensely energy dependent and demand uninterrupted, high-quality electricity to ensure reliability and speed.
- Even routine AI-driven services rely on constant data processing that places sustained pressure on electricity grids. Hence, the growth of AI is also increasing the **global energy demand exponentially**. According to the International Energy Agency (IEA), globally, data centre electricity consumption has grown by **12 per cent per year since 2017** and will rise to around **945 TWH by 2030**.
- Thus, one of the foremost challenges is **grid stress**. Data centres consume electricity continuously and at a high load, which places disproportionate strain on local energy distribution. With India's installed data capacity expected to reach 2.5 GW by 2027, grid strain is expected to intensify.

Water guzzler

- Another challenge relates to AI infrastructure, which—particularly for training and deploying large generative AI models—requires **massive amounts of water** to cool hardware. Estimates suggest that AI-related infrastructure worldwide may soon consume up to 6 times the annual water use of Denmark, a country with a population of around six million. This is a serious concern in a world where nearly a quarter of the global population still lacks access to clean water and adequate sanitation.

Policy and institutional gaps

- **Policy and institutional gaps** are also matter of concern. Despite the rapid expansion of data centres, India lacks a comprehensive national data centre policy. The Draft Centre Policy 2020 was announced by the Ministry of Electronics and Information Technology, but it was not formally adopted or implemented. Presently, data centres are largely operated under state-level policies,

which remain fragmented and are largely focused on investment incentives rather than systematic sustainability.

Regulatory works in Silos

- Additionally, in the context of land use, water governance, and environmental safeguards, ministries and different tiers of government often lack coordination, working in silos. Again, India still appears to have a major regulatory gap for data centres. There are no compulsory energy efficiency rules, and most sustainability standards are voluntary, followed mainly by large companies. There is also no clear policy or financial support for green data centres making clean power storage and sustainable cooling costly.

Inexperience in technicality and less Institutional capacity

- State utilities and regulators often lack the technical expertise to assess the long-term implications of large digital loads, especially when combined with smart grids and algorithmic management systems. Data governance and energy governance are treated separately, even though digital infrastructure increasingly depends on algorithmic control of electricity flows.

What's the way forward?

- To address the above mentioned challenges and concerns, India would need an integrated AI-energy policy framework that recognises data centres as strategic energy consumers and not merely **commercial consumers.** Their requirements need to be incorporated into long-term power planning, grid design, and demand management strategies. For this, strong coordination between different ministries, along with the alignment of policies, would be crucial.
- "Governments should focus on regulating for potentially catastrophic issues of AI and be lenient on lesser important issues until we have more clarity." OpenAI CEO Sam Altman told on the question of what governments should and shouldn't regulate
- **Equally important is the clean energy transition.** Nuclear power, including SMRs, can provide stable, low-carbon baseload electricity for data centres and AI systems. At the same time, greater use of treated wastewater for cooling can help reduce pressure on freshwater resources.
- This can be complemented with policy support for **green standards and financing**. Mandatory energy-efficiency rules, water use limits, and emissions reporting can help manage resource use, while incentives for renewable power, storage, efficient cooling and low-carbon construction can help smaller players adopt sustainable practices. If India aligns AI growth with clean energy and institutional reforms, it can build a digital economy that is competitive, resilient and

environmentally sustainable.

Conclusion

- The India AI Impact Summit 2026 concluded with the adoption of forward-looking commitments and strategic partnerships that advance a shared global vision for responsible, inclusive and development-oriented Artificial Intelligence. The outcomes of the Summit reflect a broad international consensus to harness AI for economic growth, social empowerment and sustainable development, while ensuring resilience, equity and democratic access to emerging technologies.

Declining Naxalism in India

- The Maoist insurgency in India is gradually losing ground, with key leaders surrendering and many cadres leaving the movement. This reflects India's steady progress in eliminating Naxalism and strengthening law enforcement efforts in affected regions. Recently, The surrender of Thippiri Tirupathi (alias Devuji), a top-ranking Maoist leader with a ₹1 crore bounty, marks a historic unravelling of the CPI (Maoist) leadership.
- This event, combined with the death of over 500 cadres since 2024, signals the potential endgame for the decades-old insurgency ahead of the government's March 31 deadline.

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

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

What is Maoism?

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

Operation Demolishment

- Operation Demolishment is a counter-insurgency initiative focused on dismantling memorials and monuments allegedly built by Naxal groups to glorify their leaders and spread extremist ideology.
- Conducted by Indian security forces in coordination with state police and counter-insurgency agencies.
- Implemented mainly in Naxal-affected states like Chhattisgarh and Maharashtra as part of intensified anti-LWE operations.

Key Features:

- **Ideological targeting strategy:** Focuses on removing symbols and sites used by Naxal groups for propaganda, commemorative gatherings and recruitment influence.
- **Integrated counter-insurgency approach:** Runs parallel to armed operations against cadres, aiming to weaken both physical networks and psychological support structures.

Significance:

- **Weakening extremist influence:** By dismantling memorials, authorities aim to reduce ideological attraction among local youth and vulnerable communities.
- **Shift toward holistic counter-insurgency:** Represents a transition from purely military operations to targeting the narrative and social base sustaining Naxalism.

What is India's Strategy to Eliminate Left Wing Extremism (LWE)?

Policy Framework: To address the LWE menace holistically, India approved a National Policy and Action Plan in 2015.

- It envisages a multi-pronged strategy involving security related measures, development interventions, ensuring rights and entitlements of local communities etc.
- The policy is complemented by the operational strategy **'SAMADHAN'**, together aiming to achieve a Naxal-free Bharat and transform Red Zones into Growth Corridors by March 2026.

Security Measures:

- **Deployment of Forces & Joint Operations:** Central Armed Police Forces (CAPFs), India Reserve Battalions, and Joint Task Forces carry out intelligence-led operations, including major offensives like Operation Black Forest (Operation Kagar).
- **Scheme of Fortified Police stations:** Construction of Fortified Police Stations, security camps and night landing helipads to strengthen operational readiness.
- **Security Related Expenditure (SRE) Scheme:** Supports training, operations, community policing, ex-gratia payments, and rehabilitation of surrendered cadres.
- **Financial & Intelligence Control:** National Investigation Agency (NIA) and Enforcement Directorate target Maoist funding to cut off financial resources.

Development Initiatives:

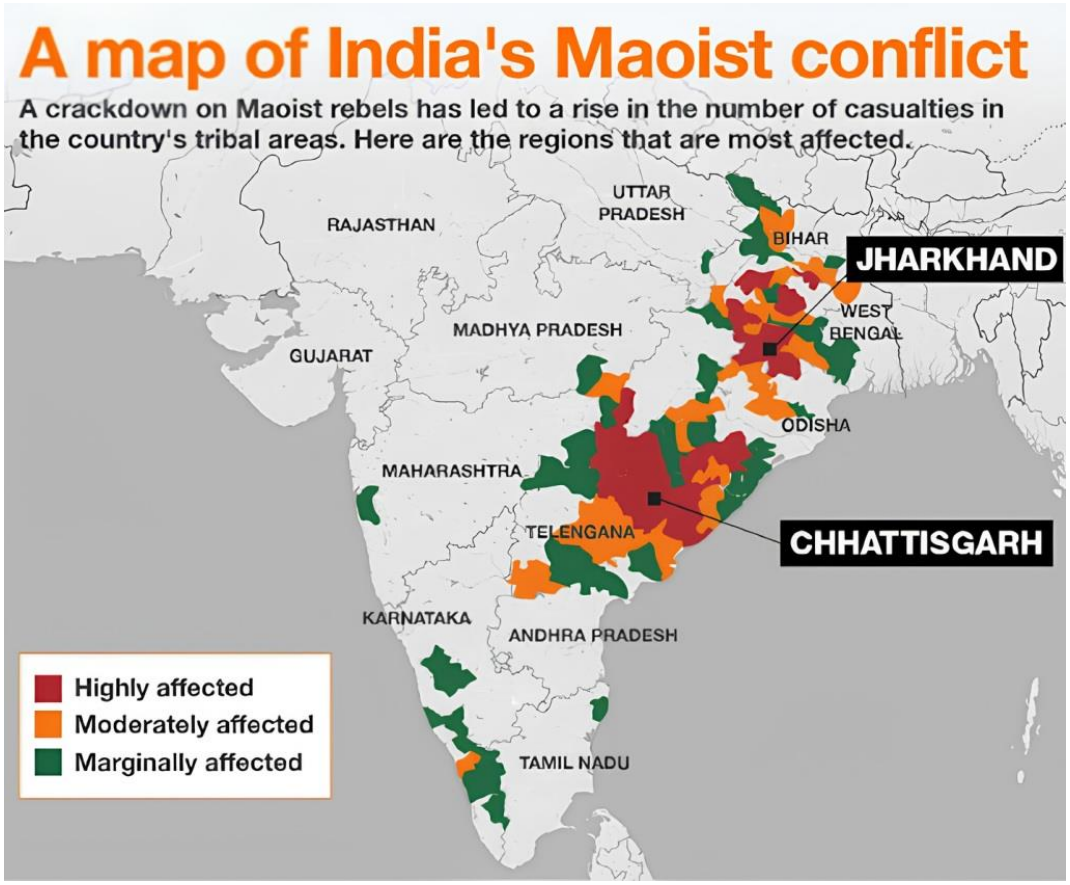
- **Road Connectivity (RRP-I & RCPLWE):** Expands road networks to improve access for both security and development purposes.
- **Telecom Connectivity:** Mobile Connectivity Projects and 4G expansion aim to connect all LWE-affected areas by December 2025.
- **Financial Inclusion:** Bank branches, ATMs, post offices, and Banking Correspondents operationalized to provide services in remote areas.
- **Skill Development & Education:** Industrial Training Institutes (ITIs), Skill Development Centres, and Eklavya Model Residential Schools strengthen human capital in tribal areas.
- **Special Infrastructure Scheme (SIS) & Special Central Assistance (SCA):** Funds for district-

level facilities, police infrastructure, and essential public services.

- **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (2024 launch):** Focus on personal amenities, improving road, mobile, and financial connectivity in over 15,000 villages.

Empowerment & Public Engagement

- **Civic Action Programme (CAP):** Provides financial support for CAPFs to engage in welfare activities, fostering trust between security forces and communities.
- **Media Plan:** This scheme is being implemented as a sub-scheme under the Umbrella Scheme ''Modernization of Police Forces''.
- It includes activities such as Tribal Youth Exchange Programs, radio jingles, documentaries, pamphlets, and other outreach materials, all aimed at countering Maoist propaganda through awareness campaigns.
- **Rehabilitation of Cadres:** Surrendered Maoists are provided education, vocational training, and financial aid to reintegrate them into society.



Challenges Encountered

Mnemonic: "INSURGENT"

- **I – Insufficient State Reach:** Limited reach of the state in remote and forested areas reduces the ability to monitor and counter insurgent activities effectively.
- **N – Neglect / Lack of Development:** Chronic neglect, lack of basic infrastructure, and minimal economic opportunities in affected areas create fertile ground for insurgent influence.
- **S – Socio-economic Grievances:** Widespread poverty, unemployment, and social inequalities drive marginalized communities to support Maoist ideology as a path to better resources and rights.
- **U – Unstable Governance:** Weak administration, local corruption, and lack of accountability allow LWE groups to operate with impunity.
- **R – Remote / Difficult Terrain:** Dense forests, hilly terrains, and inaccessible regions in the Red Corridor make surveillance and security operations challenging.
- **G – Guerrilla Tactics & Mobilization:** Highly mobile Maoist units use guerrilla warfare, ambushes, and infiltration of villages to sustain operations and evade capture.
- **E – External Support:** Some Maoist groups receive logistical, financial, or ideological backing from external sources, strengthening their capacity.
- **N – Narratives / Propaganda:** Maoists exploit local grievances through media, pamphlets, and word-of-mouth to recruit youth and maintain ideological influence.
- **T – Tribal / Community Influence:** Support from local and tribal communities, often driven by shared grievances or coercion, helps Maoists sustain their presence in rural areas.

What Measures can India Further Adopt for Naxal-Free Bharat?

Mnemonic: "REINFORCE"

- **R – Revitalize Local Governance**: Empower panchayats in tribal and remote areas to ensure faster grievance redressal, reducing the appeal of extremist ideologies.
- **E – Employment & Livelihoods:** Create sustainable rural jobs through vocational training, entrepreneurship programs, and community-driven initiatives to integrate tribal youth into the formal economy and reduce dependence on illegal activities.
- **I – Infrastructure Development:** Improve connectivity, electricity, telecom, and access to healthcare in LWE-affected regions to break isolation and integrate remote areas into the national economy.
- **N – Nurture Culture:** Strengthen democratic values while preserving local culture, art, and languages to counter extremist narratives.

- **F – Focus on Social Justice & Land Reforms:** Implement the Forest Rights Act stringently, redistribute land, and ensure the rights of marginalized communities to address historical grievances that fuel discontent.
- **O – Organize Community Policing & Trust-building:** Adopt SMART policing and civic action initiatives to foster trust between security forces and local populations, making extremist infiltration more difficult.
- **R – Rehabilitate & Counter Extremism:** Launch awareness campaigns against Maoist propaganda and support rehabilitation programs to reintegrate affected individuals while empowering communities with peaceful avenues for redressal.
- **C – Cooperatives & Economic Empowerment:** Promote rural cooperatives in agriculture, handicrafts, and forest products, providing micro-loans and market access to build self-sustaining local economies.
- **E – Enforcement & Border Security;** Strengthen cross-border security, monitor arms and fund flows, and coordinate intelligence to disrupt Maoist logistics and prevent regrouping.

Conclusion

India's multi-pronged strategy combining security, development, and rights-based empowerment has sharply weakened LWE, shrinking affected areas and restoring governance. While lone-wolf attacks may persist, the era of organized Maoist insurgency in India is effectively reaching its twilight. The challenge now lies in ensuring that development reaches the last mile to prevent any future resurgence of extremism. Sustained political will and public participation have brought the country closer to a Naxal-free India.

The Tughlaq Dynasty (1320-1413)

- After the Khilji dynasty, t**he Tughlaq dynasty (1320-1413) came to power in Delhi.** The Tughlaq dynasty formed an important period in the history and culture of the Sultanate.
- **Economic life accelerated due to the establishment of karkhanas or factories,** and irrigated **canals facilitated agriculture.** Inland and maritime trade increased and quickened the process of urbanization. **Urban centers, schools, mosques, and public buildings also proliferated.**

Important Rulers of the Tughlaq Dynasty

Ghiyasuddin Tughlaq (Ghazi Malik)

- The **founder of the Tughlaq dynasty was Ghazi Malik** who ascended the throne as Ghiyasuddin Tughlaq in AD 1320.
- After a brief rule, **he died in AD 1325** and his son **Muhammad Tughlaq ascended to the throne.**
- Under the Tughlaqs the **Delhi Sultanate was further consolidated. Many outlying territories were brought** under the direct control of the Sultanate.
- He built the **fortress city of Tughlaqabad** which was the **capital and a strong fortress designed for defense.**

Muhammad Bin Tughlaq

- He became the Sultan of Delhi after his father''s death, even though he has been blamed for his father''s death by some historians.
- The **Sultan believed in the Divine Right theory of kingship.** Following a liberal policy, **he appointed officials irrespective of caste, creed, or religion**.
- He also **did not discriminate against his Hindu subjects.**
- He undertook a policy of conquest and sent expeditionary forces to Khurasan, Nagarkot, Qarajal, Mewar, Telingana, and Malabar. **Diplomatic relations were established with many Asian countries.**
- His **empire was the most extensive one** among the medieval Sultans.
- He **constructed the Royal residence of Jahanpanah along with the Begumpuri mosque**.

Firoz Shah Tughlaq

- The cousin of Muhammad Tughlaq, Feroz (or Firuz) Shah Tughluq, **ascended the throne in 1351** and ruled until 1388. Although not a capable military leader like his predecessors, the **Sultan was a great builder of cities, monuments, and public buildings.**
- The Sultan **imposed the four taxes sanctioned by Islamic laws**, including a tax on non-Muslims. His campaign to Jajnagar (Odisha) in 1361 **destroyed the famous Puri Jagannatha temple.**

Achievements of Firoz Shah

- Firoz Shah Tughlaq worked majorly for the development of infrastructure in his kingdom.
- **Diwan-i-Khairat:** Office for charity
- **Diwan-i-Bundagan**: Department of slave
- **Sarais (Rest House):** For the benefit of merchants and other travellers

- **Four New Towns:** Firozabad, Fatehabad, Jaunpur and Hissar

He constructed canals from:

- **Yamuna** to the city of Hissar
- **Sutlej** to the Ghaggar
- Ghaggar to Firozabad
- Mandvi and Sirmour Hills to Hansi in Haryana

Taxes imposed under Firoz Shah Tughlaq:

- **Kharaj:** Land tax which was equal to one-tenth of the produce of the land
- **Zakat:** Two and a half percent tax on property realised from Muslims
- **Kham:** One-fifth of the booty captured (four-fifth was left for the soldiers)
- **Other Taxes**: The irrigation tax, garden tax, octroi tax and the sales tax

Muhammad bin Tughlaq's Experiments

- **Transfer of Capital**
- Next to Alauddin Khalji, Muhammad bin Tughlaq (1324 - 1351) **is best remembered as a ruler who undertook a number of bold experiments** and showed a keen interest in agriculture.
- The **most controversial step** that Muhammad Tughlaq undertook soon after his accession was the **so-called transfer of the capital from Delhi to Deogir** (later renamed as Daulatabad).
- **Only the upper classes,** such as the shaikhs, nobles, and ulema, **were required to move to Daulatabad, while the rest of the population remained in Delhi.**
- Eventually, **due to growing discontent and the realisation that it was difficult to control** the northern territories from the south, **Muhammad bin Tughlaq decided to abandon Daulatabad as the capital.**
- It **helped in bringing North and South India closer together** by improving communications. **Many people, including religious divines who had gone to Daulatabad, settled down there**. They **became the means of spreading in the Deccan the cultural, religious and social ideas** which the Turks had brought with them to north India.
- This **resulted in a new process of cultural interaction between North and South India,** as well as in South India itself.

Token Currency

- Another **controversial project undertaken by Muhammad bin Tughlaq was the introduction of "Token Currency".** According to Barani, the Sultan introduced token currency **because the treasury was empty due to the Sultan's schemes of conquest as well as his boundless generosity.**
- There **was a shortage of silver in the world in the fourteenth century** and India had to face the crisis. Therefore, the **Sultan was forced to issue copper coins instead of silver.**
- He **introduced a copper coin (Jittal) instead of a silver coin (tanka)** and ordered that it be accepted as equivalent to the tanka. However, **the idea of token currency was new in India and was difficult for traders and common people** to accept.
- The State also did not take proper precautions to check the imitation of coins issued by mints. The **government could not prevent people from forging new coins and soon new coins flooded the markets.**
- According to Barani, **the people began to mint token currency in their houses.** However, the common man failed to distinguish between copper coins issued by the royal treasury and those which were locally made. **Thus, the Sultan was forced to withdraw the token currency.**

Khurasan & Qarachil Expedition

- In the early 14th century, the Delhi Sultanate under Muhammad bin Tughluq embarked on **several military expeditions to secure its frontiers and resolve boundary disputes.**
- The **Khurasan expedition** aimed to establish more defensible frontiers in the west. However, this expedition did not materialize.
- **Qarachil expedition** was an attempt to resolve a boundary dispute with neighboring hill states that were under Chinese influence.
- However, this expedition ended in failure. Despite this setback, there was **later diplomatic communication between China and Delhi.**
- **Agrarian Reforms & Changes in Nobility Took Place During the Reign of Muhammad Tughlaq**

Agrarian Reforms

- Muhammad Tughlaq **undertook a number of measures to improve agriculture.** Most of these were **tried out in the Doab region**. Muhammad Tughlaq **did not believe in Alauddin Khalji's policy of trying to reduce the khuts and muqaddams** (headmen in the villages) to the position of ordinary cultivators. But **he did want an adequate share of the land revenue for the state.**
- The **measures he advocated had a long-term impact, but they failed disastrously during his**

reign.

- Right at the beginning of Muhammad Tughlaq's reign, **there was a serious peasant rebellion in the Gangetic doab due to over-assessment.** Peasants fled the villages and Muhammad Tughlaq **took harsh measures to capture and punish them.**
- A severe **famine that ravaged the area for half a dozen years made the situation worse.**
- Efforts at **relief by giving advances for cattle and seeds, and for digging wells came too late.** So many people died in Delhi that the air became pestilential.
- The sultan **left Delhi and for two and half years lived in a camp called Swargadwari,** 100 miles from Delhi on the banks of the Ganges near Kanauj.
- After returning to Delhi, **Muhammad Tughlaq launched a scheme to extend and improve cultivation in the doab**. He set up a separate department called **diwan-i-amir-i-kohi.**
- The **area was divided into development blocs headed by an official whose job was to extend cultivation** by giving loans to the cultivators and to induce them to **cultivate superior crops—wheat** in place of **barley**, **sugarcane** in place of wheat, **grapes** and dates in place of sugarcane, etc.
- The **scheme failed largely because the men chosen for the purpose proved to be inexperienced and dishonest**, and misappropriated the money for their own use.
- Muhammad Tughlaq had died in the meantime, and **Firoz had written off the loans.** But the policy advocated by Muhammad Tughlaq for extending and improving cultivation was not lost. It **was taken up by Firoz, and even more vigorously later on by Akbar.**

Challenges of a Diverse Nobility:

- Another problem that **Muhammad Tughlaq had to face was the problem of the nobility.** With the downfall of the **Chahalgani Turks** and the rise of the Khaljis, **the nobility was drawn from Muslims belonging to different races, including Indian converts.**
- Muhammad Tughlaq **entertained people who did not belong to noble families but belonged to castes** such as barbers, cooks, weavers, wine-makers, etc. He even **gave them important offices.**
- His **nobility consisted of descendants of Muslim converts, including a few Hindus**, as well as foreign appointees. This **diverse composition led to a lack of cohesiveness and loyalty among the nobles.**
- The **vast empire provided opportunities for rebellion and the establishment of independent spheres of authority.** Muhammad Tughlaq''s harsh punishments further fueled this trend.
- As a result, **his reign marked both the zenith of the Delhi Sultanate and the beginning of its disintegration.**

How did Firoz Shah Tughlaq Rise to Power?

- During Muhammad Tughlaq''s reign, **there were repeated rebellions across his empire, particularly in South India.** These uprisings were organised by local governors and caused significant strain on his armies.
- Muhammad Tughlaq''s **forces were further weakened by a devastating plague, resulting in the death of two-thirds of his army.** After returning from south India, **another rebellion led by Harihara and Bukka led to the establishment of the Vijayanagara Empire,** while foreign nobles in the Deccan formed the Bahmani Empire.
- **Bengal also gained independence.** Although Muhammad Tughlaq managed to suppress rebellions in Awadh, Gujarat, and Sind, **he ultimately died in Sind and was succeeded by his cousin, Firuz Tughlaq.**
- Since Muhammad Tughlaq''s **policies created discontent among the nobles, army, and influential Muslim theologians and Sufi saints.**
- After ascending to power, Firoz Tughlaq **faced the challenge of preventing the disintegration of the Delhi Sultanate.** He **pursued a policy of appeasement** towards the nobles, army, and theologians while asserting authority over easily manageable areas.
- He **did not attempt to regain control over South India and the Deccan.**

Policies Taken by Firoz Shah Tughlaq

- Firoz Tughlaq **was not a remarkable military leader, but his reign brought a period of peace and gradual development.** He implemented a **decree allowing the succession of positions and iqta** (land grants) **to the sons, sons-in-law, and slaves of deceased nobles.**
- He abolished the practice of torturing nobles and officials during account audits. These measures **pleased the nobles and minimised rebellions.**
- However, **the policy of hereditary offices and iqta had long-term drawbacks.** It limited the recruitment of competent individuals outside a small circle and made the sultan dependent on a narrow oligarchy.
- He extended the principle of heredity to the army, allowing old soldiers to be replaced by their sons, sons-in-law, or slaves. **Soldiers were no longer paid in cash but instead received assignments on land revenue from villages.**
- Consequently, **soldiers did not benefit in the long run**, and the military administration became lax, and corruption increased.
- He aimed to appease the theologians by proclaiming himself a true Muslim king and emphasising that his state was truly Islamic. **Since the time of Iltutmish, there had been a conflict between**

the orthodox theologians and the sultans regarding the nature of the state and its policies towards non-Muslims.

- To **maintain the theologians'' satisfaction, some were appointed to high offices**, although the judiciary and educational system remained under their control.
- He boycotted the practices in the kingdom, the scholars deemed un-Islamic. He was the one who started the imposition of Jaziya.
- Firuz Tughlaq **was the first ruler who took steps to have Hindu religious works translated from Sanskrit into Persian,** so that there may be a better understanding of Hindu ideas and practices.
- Many books on music, medicine and mathematics were also translated from Sanskrit into Persian during his reign.

Most prominent foreign travellers who visited India

- Accounts left by foreign travellers form one of the most vital categories of **literary sources** for reconstructing Indian history. Where indigenous texts often focus on religious or literary themes, traveller narratives offer first-hand, comparative perspectives on administration, economy, society, and culture.

Megasthenes

- 302 to 298 B.C.
- He was the ambassador of Seleucus.
- He travelled to India when Chandragupta Maurya was in power.
- Chandragupta was referred to as Sandrocottus by the Greeks.
- He was also the author of the novel "Indica."
- Megasthenes is referred to be the "Father of Indian History" since he was the first to depict ancient India.

Abdur Razzak

- 1443 A.D. – 1444 A.D.
- An Islamic scholar and philosopher named Abdur Razzak paid a visit to India while Dev Raya II, the most illustrious ruler of the Sangama dynasty, was in power.
- The people of Calicut, whom he described as having bad hygiene and practicing polyandry, did not impress him.

- Since the Vijayanagar King had called him to his dominion, his time in Calicut was brief.
- Razzak passed through Mangalore before arriving in Vijayanagara.

Alberuni

- 1024–1030 A.D.
- After travelling to India, he wrote a book about Indian culture.
- He wrote Kitab-ul-hind or Tahqiq-i-Hind after investigating the Hindu religion that is widely practiced in India (History of India).
- He became fully knowledgeable about India.
- He studied Sanskrit, Indian philosophy, and the nation's socioeconomic situation since he was fascinated by Indian culture.
- He occasionally drew parallels between Sufi doctrine and Indian philosophy, as well as that of Socrates, Pythagoras, Plato, Aristotle, Galen, and others.
- His book provides an account of Indian history based on his investigation and observations made between 1017 and 1030.

Al-Masudi

- 957 A.D.
- Since Al Masudi was the first Arab author to combine history and scientific geography in his works, he was known as the "Herodotus of the Arabs."
- Masudi was a prolific author who is thought to have produced 34 works in total.
- He visited Malacca, the contemporary capital of Malaysia, as well as Sri Lanka and Indonesia.
- He cites strong trade between Malacca and India's east coast.
- Al-Masudi believes that the Atlantic and Indian Oceans are connected and refers to the Atlantic Ocean as the Dark-Green Sea.

Fa-Hien

- 405 to 411 A.D.
- He was a Chinese Buddhist monk.
- He travelled to India during the rule of Vikramaditya (Chandragupta II).
- He gained notoriety for visiting Lumbini.
- His travel journal, " Record of Buddhist Kingdoms," details his adventure.

Hiuen Tsang

- 630 to 645 AD.
- During the time of King Harsha Vardhan, a Chinese Buddhist monk by the name of Hiuen Tsang, popularly known as Xuanzang, travelled from China to India to collect Buddhist texts.
- He studied in Nalanda, a prestigious institution in the Indian state of Bihar, for almost five years. Hiuen Tsang studied logic, grammar, Sanskrit, and the Yogacara style of Buddhism when he was in Nalanda.
- He wrote "The Records of the Western World," or Si-yu-ki.

Ibn Battuta

- 1333 to 1347.
- Ibn Battuta, a Moroccan nomad who travelled the world in the 13th century, left his home at the age of 21.
- In Mohammad Bin Tughlaq's royal court, Ibn Battuta came.
- They set ship from the Gujarati port of Khambhat for Calicut, now called Kozhikode, where they were invited guests of the ruling Zamorin.
- One of the ships of the Ibn Battuta expedition perished in a storm that happened close to Calicut, but the second ship continued without difficulty and was seized a few months later by a local Sumatran ruler.
- He travelled around Southern India for a while under Jamal-ud-protection.
- The poem **Rihla** was written by Ibn Battuta.

Marco Polo

- 1292 and 1294.
- Marco Polo, a Venetian trader and explorer, travelled from Europe to Asia .
- He joined the Tanjore-area Tamil Pandya kingdom.
- He travelled across Southern India while Rudramma Devi of the Kakatiya Dynasty was in power. One of India's few queens was Rudramadevi, who ruled from 1261 to 1295 CE.

Nicolo Conti

- 1420 to 1421.
- Italian explorer and merchant Niccolo Conti travelled to India in the year 1420, perhaps after Deva Raya II assumed the throne of the Vijayanagara state.
- Niccolo visited Sonargaon and Chittagong (in modern-day Bangladesh), then travelled by land to Arakan (now Rakhine State, Burma).

- The southernmost point that Conti ventured to was Ceylon. He made several stops, notably in Cochin and Calicut, along the Malabar Coast of India (Kozhikode).
- Before travelling to the southern coast of the Arabian Peninsula and the city of Aden, he returned to Cambay.

Sung Hyun

- 518CE
- He arrived in India in 518 CE along with the monks "Hui Zheng," "Fa Li," and "Zheng Fouze" while the Buddhist Empress Hu of the "Northern Wei Dynasty" was in power.
- Sung Yun, a native of Dunhuang, a city in China.
- They departed from the Wei capital of Luoyang in 518 and returned in the winter of 522 bearing 117 Mahayana Buddhist scriptures.
- Fortunately, many important details of their journey have been recorded in Yang Xianzhi's Loyang Jielanji and other works.
- He visited the Swat region of northern India and created the Gandhara dynasty story there.

Afanasy Russian Nikitin

- 1442-1443 AD
- A Russian businessman named Nikitin spent more than two years in India, travelling to various locations, getting to know the people there, and methodically documenting everything he saw.
- The merchant's notes were assembled into a document called a "Journey," which is more akin to a trip journal.
- This literature accurately reflected the nature and political structure of India, as well as its traditions, way of life, and customs.

Thomas Roe

- 1615 A.D. – 1619 A.D
- Englishman Sir Thomas Roe served as a diplomat.
- He visited India in 1615, during Jahangir's rule. He went to Surat to look for security for an English company.
- He left behind a priceless contribution to Indian history with his "**Journal of the Mission to the Mughal Empire**."

Domingo Paes

- 1520-1522 A.D.
- Numerous Portuguese traders and tourists visited Vijayanagara when Goa was taken over in 1510 and became the seat of the Portuguese Estado da India.
- These visitors published in-depth reports of Bisnaga's beauty.
- Domingos Paes' is most noteworthy, written between 1520 and 1522.
- Paes' description, published during Krishnadeva's reign and mostly based on close observation, fully explains the yearly royal Durga festival and the so-called feudal Malankara system of Vijayanagara's military organisation.

Fernao Nunes

- 1535-1537 A.D.
- A Portuguese horse dealer named Fernao Nuniz wrote his account of India sometime between 1536 and 1537.
- He was at Vijaynagara's capital under the rule of Achyutaraya, and he might have been present for Krishnadevaraya's earlier battles.
- This visitor was very interested in the history of Vijayanagara, particularly the building of the city, the subsequent rule of three dynasties, and the battles they fought against the Deccan sultans and Orissan Rayas.
- Additionally, his observations offer insight into the Mahanavami celebration, where he admires the extravagant gems worn by the courtly women and the hundreds of women serving the monarch.

Francois Bernier

- 1656 A.D. – 1668A.D.
- He was a French traveller and doctor.
- He spent the years 1656 to 1668 in India.
- In the course of rule of Shah Jahan he visited India.
- He served Prince Dara Shikoh as a doctor before joining Aurangzeb's court.
- The rules of Aurangzeb and Dara Shikoh are mostly discussed in the book.

Jean Baptiste Tavernier

- 1638-1663 A.D.
- French traveller who visited India 6 times during the reign of Shahjahan and Aurangzeb.

William Hawkins

- 1608-1611 A.D.
- A representative of King James I of England.
- Arrived in India during the rule of the great Mughal Emperor Jahangir along with William Finch.

Ancient Foreign Travellers

Traveller	Period	Dynasty/Ruler	Key Observations	Major Work
Megasthenes	c. 302–298 BCE	Chandragupta Maurya	Seven-fold caste division, Pataliputra, Mauryan admin	*Indica*
Fa-Hien	c. 399–414 CE	Chandragupta II (Gupta)	Peaceful society, mild punishments, Buddhist pilgrim sites	*Fo-Kuo-Ki*
Hiuen Tsang	c. 630–645 CE	Harshavardhana	Nalanda, caste, Harsha's assemblies, 100+ kingdoms	*Si-Yu-Ki*
I-Tsing	c. 671–695 CE	Post-Harsha period	Nalanda monastic life, Buddhist rituals, medicine	*Record of Buddhist Religion*

Medieval Foreign Travellers

Traveller	Origin	Period	Dynasty/Region	Focus Area	Major Work
Al-Masudi	Arab	10th c.	Pratiharas, Rashtrakutas	Trade, religion	*Muruj-ul-*

					Zahab
Al-Beruni	Central Asian	11th c.	Ghaznavid-era India	Philosophy, science, caste	*Kitab-ul-Hind*
Ibn Battuta	Moroccan	14th c.	Muhammad bin Tughlaq	Administration, society, trade	*Rihla*
Al-Idrisi	Arab/Sicilian	12th c.	General (geographer)	Geography, trade routes	*Nuzhat al-Mushtaq*
Marco Polo	Venetian	13th c.	Pandya kingdom, Malabar	Trade, wealth, customs	*Il Milione*

Early Modern Travellers

Region Focus	Traveller	Key Themes
South India (Vijayanagara & Malabar)	Nicolo Conti	City grandeur, army strength, sati
	Domingo Paes	Krishnadeva Raya, Mahanavami, markets
	Duarte Barbosa	Spice trade, Nairs, caste, Malabar coast
North India (Mughal Empire)	François Bernier	Succession war, land ownership, poverty
	J.-B. Tavernier	Diamond trade, Peacock Throne, commerce

Contributions of Foreign Travellers

- The accounts of these travellers covered a variety of topics. The stories that have survived cover a wide range of topics.
- Others are interested in religious issues, architectural issues, and monuments, while some are preoccupied with legal difficulties.
- Visitors to India accurately portrayed Indian culture in their writings.
- Particularly in mediaeval and ancient India, foreign travel reports are crucial to understanding Indian history.
- Their tour's narrative was able to shed light on a number of topics, including government and regional customs.
- Understanding what other people think of our country is helpful. It helps us recognise where our nation is lacking.
- Understanding how people lived in our country is useful.
- Their writings offer details on the ports along the coast of India, the trade centres within India, the trade routes connecting the trade centres and ports, the distance between the centres, a list of the commodities that can be traded, the annual volume of trade, rates, ship types, and other information.
- Across all periods, traveller accounts consistently cover five broad thematic areas. The following matrix shows which traveller provides the richest information on each theme.

Theme	Key Travellers	What They Observed
Administration & Governance	Megasthenes, Ibn Battuta, Bernier	Mauryan bureaucracy, Sultanate postal system (Barid), Mughal land revenue, judicial systems
Economy & Trade	Marco Polo, Barbosa, Tavernier	Spice trade, Malabar ports, Golconda diamonds, currency, guilds, Indian Ocean commerce
Social Life & Caste	Megasthenes, Al-Beruni, Fa-Hien, Hiuen Tsang	Caste divisions, untouchability, sati, women's status, festivals, food habits
Religion & Culture	Fa-Hien, Hiuen Tsang, I-Tsing, Al-Beruni	Buddhist monasteries, Hindu temples, Nalanda, philosophical systems,

		religious syncretism
Cities & Architecture	Megasthenes, Domingo Paes, Bernier	Pataliputra's grandeur, Vijayanagara's markets, Mughal Delhi, Agra, fortifications

- India has drawn several adventurous travellers who have fallen in love with its customs and colours from the beginning of time. These foreign travellors had no allegiance to the local tyrants; as a result, their testimonials are unbiased and offer specific information on the subjects they covered.

Baglihar Hydropower Project Temporarily Halted

- Operations at the 450 MW Stage-I of the Baglihar Hydropower Project were recently suspended after flooding affected the project site on the Chenab River in Jammu & Kashmir.The incident has raised concerns about the vulnerability of hydropower infrastructure to extreme weather and river flow fluctuations.

Background and Context

- The Chenab River basin is prone to heavy rainfall, glacial melt, and flash floods, particularly during monsoon and extreme weather events. Hydropower projects located in Himalayan river systems face increasing climate variability risks.
- The temporary shutdown of a major generating unit highlights the need for improved flood management, dam safety protocols, and climate-resilient infrastructure planning.

About the Baglihar Hydropower Project

- The Baglihar Hydropower Project is a **900 MW run-of-the-river power project** located on the Chenab River in **Ramban district** of Jammu and Kashmir.

Key Features

- **Type:** Run-of-the-river hydroelectric project.
- Total Installed Capacity: 900 MW.
- **Structure:** Concrete gravity dam.

Stages:

- **Stage I – 450 MW.**
- **Stage II – 450 MW.**
- The project is a major contributor to northern India's power supply and plays a role in regional energy security.

Key Facts About the Chenab River

- **Position in Indus Basin**
- The Chenab is the largest of the five tributaries of the Indus River.
- It is one of the western rivers governed under the Indus Waters Treaty framework.

Course

- **Origin:** Formed by the confluence of the **Chandra and Bhaga streams in Lahaul and Spiti district** of Himachal Pradesh.
- In upper reaches, it is known as **Chandrabhaga.**
- Flows through Himachal Pradesh and Jammu & Kashmir.
- Enters Pakistan after crossing the Line of Control.
- **Joins the Sutlej** after receiving waters from the Jhelum near Trimmu (in Pakistan).
- The Chenab valley is a structural trough formed between the **Great Himalayan and Pir Panjal ranges.**

Major Tributaries

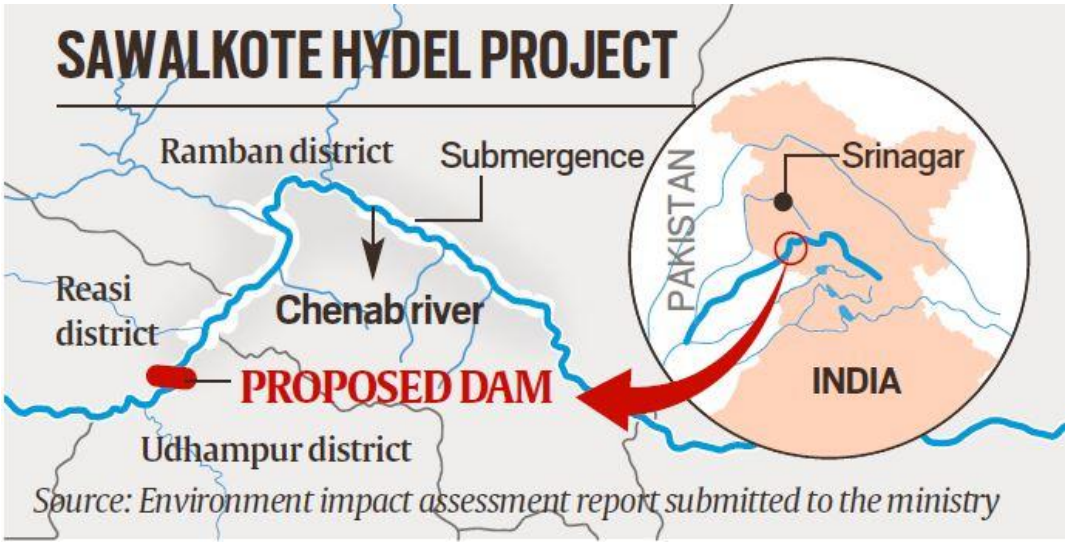
Left Bank Tributaries:

- Niru
- Tawi
- Neeru
- Liddrari

Right Bank Tributaries:

- Ans
- Bhut Nalla
- Bichleri
- Kalnai
- Marusudar

- Miyar Nalla



Major Dams on the Chenab

- **Salal (rockfill dam)**
- **Aalal (concrete dam)**
- **Baglihar**
- **Dul**

Significance of the Baglihar Project

Energy Security

- Contributes significantly to the northern grid.
- Supports peak power demand.

Strategic Importance

- Located on a western river under the Indus Waters Treaty.
- Infrastructure development on Chenab has geopolitical significance.

Flood Management

- Although primarily a run-of-the-river project, dam infrastructure helps moderate river flows to some extent.

Challenges Highlighted by Recent Flooding

- Increased frequency of extreme rainfall events.
- Siltation and debris flow affecting turbines.

- Structural vulnerability in Himalayan hydropower projects.
- Climate change-induced hydrological unpredictability.

Temporary suspension of operations underscores the need for:

- Improved dam safety audits.
- Real-time flood forecasting systems.
- Strengthened early warning mechanisms.
- Climate-resilient infrastructure design.

Broader Implications

- **Infrastructure Resilience:** Hydropower projects in fragile Himalayan terrain must integrate disaster risk reduction measures.
- **Environmental Concerns:** Run-of-the-river projects, though less storage-intensive, remain vulnerable to flash floods and **glacial lake outburst floods (GLOFs).**
- **Policy Perspective:** The incident highlights the importance of balancing renewable energy expansion with ecological sensitivity and safety planning.

What lies ahead?

- The International Hydropower Association (IHA) promotes a combination of water, wind, and sun to achieve sustainable energy goals.
- Ghana and Kenya are successfully moving from high reliance on hydropower towards a more "robust portfolio of technologies".
- There's significant potential in placing floating solar panels on reservoirs in hydropower plants, it is already explored by countries like China and Brazil.
- There is a need to move away from mega dams toward medium-scale plants, it can help mitigate climate risks associated with overdependence on large infrastructure projects.

Industrial Corridors of India

- The Union Budget 2026-27 has accelerated India's infrastructure vision by announcing the Integrated East Coast Industrial Corridor with a key node at Durgapur and allocating ₹3,000 crore to the NICDIT for ongoing projects.

Industrial Corridors of India:

- Industrial corridors are linear development zones designed as planned economic belts. They integrate world-class infrastructure—including high-speed rail, expressways, ports, and smart cities—to connect major economic hubs.
- These corridors aim to lower logistics costs and foster an environment where industries can operate with plug-and-play facilities and walk-to-work ecosystems.

Data & Stats on Industrial Corridors:

- **Network Scope:** India is developing 11 Industrial Corridors under the National Industrial Corridor Development Programme (NICDP).
- **Current Progress:** 4 projects are completed (Phase-I cities) and 4 projects are nearing completion.
- **Investment:** Phase-I projects alone have attracted ₹2.02 lakh crore in investments across sectors like EVs, renewables, and pharma.
- **New Projects:** 12 additional projects were recently approved with a total cost of ₹28,602 crore, aiming to create nearly 1 million direct jobs.
- **Budget 2026-27: ₹3,000 crore allocated to NICDIT** to accelerate implementation.

Major Industrial Corridors of India:

Delhi–Mumbai Industrial Corridor (DMIC)

- **Flagship Status:** India's premier corridor, featuring world-class Smart Cities like Dholera (India's first semiconductor city) and Shendra-Bidkin.
- **Logistics Power:** Anchored by the Western Dedicated Freight Corridor (WDFC), ensuring rapid transit between the political and financial capitals.
- **Strategic Verticals:** Leading the charge in Electric Vehicles (EVs), high-end electronics, and renewable energy manufacturing.

Chennai–Bengaluru Industrial Corridor (CBIC)

- **Manufacturing Powerhouse:** Links the high-tech ecosystem of Bengaluru with the Detroit of Asia (Chennai).
- **Key Nodes:** Major developments at Tumakuru (Karnataka) and Krishnapatnam (Andhra Pradesh) are nearing completion.
- **Industrial Focus:** Dominates in automobiles, precision engineering, and consumer electronics.

Amritsar–Kolkata Industrial Corridor (AKIC)

- **Eastern Link:** Aligned with the Eastern Dedicated Freight Corridor (EDFC), spanning the vast Indo-Gangetic plains.
- **Cluster Model:** Utilizes Integrated Manufacturing Clusters (IMCs) to revitalize the industrial heartland of North and East India.
- **Sector Focus:** Primarily targets agro-processing, heavy engineering, and steel-based manufacturing.

Vizag–Chennai Industrial Corridor (VCIC)

- **Maritime Connectivity:** India's first coastal corridor, acting as a critical component of the East Coast Economic Corridor (ECEC).
- **Blue Economy:** Prioritizes port-led industrialization, creating a seamless link between manufacturing zones and global shipping routes.
- **Core Industries:** Strategic focus on petrochemicals, export-oriented textiles, and logistics.

Bengaluru–Mumbai Industrial Corridor (BMIC)

- **Western-Southern Synergy:** Bridging the gap between the industrial powerhouses of Maharashtra and the tech-driven Karnataka.
- **Regional Growth:** Key nodes at Dharwad and Satara act as magnets for high-tech manufacturing.

- **Economic Goal:** Aims to decongest existing metros by creating self-sustaining industrial townships along the route.

Extension of CBIC to Kochi via Coimbatore (ECKC)

- **Peninsular Connectivity:** Extends the reach of southern industrial belts to the Kochi Port.
- **Key Nodes**: Significant projects in Palakkad (Kerala) and Dharmapuri-Salem (Tamil Nadu).
- **Traditional Strengths:** Strengthens global value chains in textiles, food processing, and specialized engineering.

Hyderabad–Nagpur Industrial Corridor (HNIC)

- **Central Expansion:** Aims to unlock the industrial potential of Central India by connecting two major urban centers.
- **Anchor Project:** The Zaheerabad node in Telangana is a focal point for massive industrial investment.
- **Growth Drivers:** Focused on the automotive supply chain and heavy engineering equipment.

Hyderabad–Warangal Industrial Corridor (HWIC)

- **State-Led Growth:** A specialized initiative to decentralize industry within Telangana.
- **Diversification**: Encourages a shift from traditional sectors toward diverse, high-value manufacturing clusters.
- **Regional Impact:** Designed to boost rural economies by providing high-quality industrial infrastructure in tier-II regions.

Hyderabad–Bengaluru Industrial Corridor (HBIC)

- **Tech Corridor:** Connects India's two largest technology hubs, facilitating a Knowledge Economy corridor.
- **Specialized Node:** The Orvakal industrial area is being developed as a premier destination for high-tech sectors.
- **Strategic Sectors:** High emphasis on Aerospace, Defence, and advanced semiconductor assembly.

Odisha Economic Corridor (OEC)

- **Resource and Port Model:** Capitalizes on Odisha's immense mineral wealth and its strategic ports at *Paradip and Dhamra.*
- **Maritime Integration:** Strengthens India's presence in the Bay of Bengal maritime trade route.

- **Primary Industries:** Heavily oriented toward steel, aluminum, and downstream mineral-based industries.

Delhi–Nagpur Industrial Corridor (DNIC)

- **Logistics Gateway:** A planned corridor aimed at improving North-South connectivity through the center of India.
- **Balanced Development:** Explicitly designed to reduce regional development imbalances by industrializing the hinterlands.
- **Future Vision:** Focuses on becoming a hub for national-level logistics and warehousing due to its central location.

Significance:

- **Global Competitiveness:** Provides plug-and-play infrastructure (ready-to-use land and utilities) that allows businesses to start operations immediately, making India a global manufacturing destination.
- **Logistics Efficiency:** By integrating with the PM GatiShakti framework and Dedicated Freight Corridors (DFCs), these zones drastically reduce the time and cost of moving goods to ports.
- **Sustainable Urbanization:** Promotes Low-Carbon Cities (LCCs) with transit-oriented development, renewable energy integration, and vast green spaces.
- **Socio-Economic Growth:** Acts as a catalyst for regional development, providing high-quality employment in traditionally less-industrialized hinterlands.

Conclusion:

- The development of 11 Industrial Corridors marks a shift from isolated industrial zones to integrated, multi-modal manufacturing ecosystems. With new budget support and the Durgapur node, India is strengthening infrastructure to compete globally. These corridors will be key drivers of Viksit Bharat @ 2047, boosting growth and exports.

India-Israel Bilateral Relations

- Prime Minister of India conducted a historic state visit to Israel, where both nations elevated their ties to a Special Strategic Partnership for Peace, Innovation, and Prosperity.

About India-Israel Bilateral Relations:

- India and Israel share a multi-dimensional relationship characterized by deep security cooperation, a knowledge-hub partnership in technology, and a shared vision for regional stability. The relationship has evolved from hesitant diplomatic beginnings to a robust, open alliance based on mutual strategic interests and civilizational ties.

Data & Stats:

- **Agriculture:** Over 1 million Indian farmers have been trained across 35 operational Indo-Israel Centres of Excellence.
- **Research Funding:** Joint research contributions increased from million to million each for the India-Israel Joint Research Calls (IIJRC).
- **Labor Mobility:** A goal to deploy 50,000 additional Indian workers in Israel over the next five years in sectors like construction and nursing.
- **Trade Infrastructure:** Negotiations for a Free Trade Agreement (FTA) have been fast-tracked following the 2025 Bilateral Investment Agreement.
- **Start-up Ecosystem:** The **I4F fund** has become a primary driver for industrial R&D, facilitating dozens of high-tech joint ventures.

History of Relations:

- **1950:** India officially recognized the State of Israel but maintained limited engagement due to its Cold War-era Non-Aligned stance.
- **1992:** Full diplomatic relations were established with the opening of embassies, marking a shift toward pragmatic foreign policy.
- **Kargil War (1999):** Israel provided critical military assistance and intelligence to India, cementing a silent but deep security bond.
- **2017:** PM Modi became the first Indian PM to visit Israel, de-hyphenating India's relations with Israel and Palestine.
- **2022-23:** Formation of the **I2U2 Group (India, Israel, UAE, USA),** shifting the focus toward regional economic integration.

Recent Bilateral Meeting Outcomes:

Strategic & Institutional Elevation

- **A New Status:** Ties elevated to a 'Special Strategic Partnership for Peace, Innovation & Prosperity', signaling a long-term commitment beyond security.

- **Institutional Framework:** Established the India-Israel Academic Cooperation Forum (I2I Forum) and the India-Israel Parliamentary Friendship Group to ensure cooperation across government, academia, and legislature.

Frontier Technology & AI Leadership

- **CET Initiative:** A new Critical and Emerging Technology (CET) initiative, led by both National Security Advisors (NSAs), will now govern niche sectors like semiconductors and quantum computing.
- **AI Integration:** Signed a landmark MoU on Artificial Intelligence, focusing on both industrial application and a specific framework for Advancing Education through AI.
- **Horizon Scanning:** Launched a Strategic Foresight Mechanism using AI and big data to predict global trends in economy and technology.

Comprehensive Cybersecurity & Space

- **Centre of Excellence:** Signed a Letter of Intent (LoI) to establish an Indo-Israel Centre of Excellence in Cybersecurity in India.
- **Strategic Roadmap:** A multi-year program was adopted to integrate Security by Design and perform joint financial-cyber simulations to protect digital economies.
- **Space Start-ups:** Directed ISRO and ISA to move beyond satellite launches toward fostering joint ventures between private space start-ups.

Economic & Fintech Connectivity

- **Unified Payments (UPI):** A major breakthrough to link India's UPI with Israel's fast payment system, facilitating real-time cross-border transactions.
- **Trade Frameworks:** Following the 2025 Bilateral Investment Agreement, both nations have fast-tracked Free Trade Area (FTA) negotiations to unlock untapped market potential.
- **Infrastructure:** India will increase participation in Israeli mega-projects, including metro, rail, and desalination plants.

Agriculture, Water & Marine Heritage

- **Innovation Centres:** Established the India-Israel Innovation Centre for Agriculture (IINCA) and a new Joint CoE in Fisheries and Aquaculture.
- **Water Diplomacy:** Expanded the Cleaning of the Ganges initiative using Israeli wastewater reuse and desalination technologies.

- **Underwater Archaeology:** A unique MoU between Lothal (National Maritime Heritage Complex) and the Israel Antiquities Authority for underwater archaeological exploration.

Regional Security & Labor Mobility

- **Counter-Terrorism:** Jointly condemned the Oct 7 (Israel) and 2025 Pahalgam/Delhi (India) attacks; expressed support for the Gaza Conflict End Plan and freedom of navigation.
- **Worker Safety:** Formalized protocols for 50,000 additional Indian workers to enter Israel over 5 years, ensuring strict safety and legal rights under the 2023 Framework Agreement.

Challenges to Bilateral Relations:

- **Regional Stability & Conflict:** Ongoing Middle East tensions can complicate India's energy security and diaspora safety.
- E.g. The suspension of **Druzhba oil flows** and Gaza conflict volatility require India to balance its Special Strategic Partnership with energy-rich Arab nations.

- **The Balancing Act (Palestine):** India remains committed to a two-state solution, which occasionally creates diplomatic friction during heightened Israel-Palestine escalations.
- E.g. India's support for President Trump's Gaza Peace Plan shows a careful alignment with peace processes while maintaining its independent stance at the UN.

- **Cross-Border Terrorism:** Both nations are victims of terrorism, requiring synchronized global policy which is often hindered by differing international definitions of terror.
- E.g. The 2025 attacks in Pahalgam and New Delhi underscore the persistent threat that demands intelligence-sharing beyond just hardware sales.

- **Cyber Vulnerabilities:** As financial systems link (UPI-Israel), the risk of sophisticated state-sponsored cyber-attacks increases.
- E.g. The March 2025 inaugural Cyber Policy Dialogue was established specifically to address the surge in financial-cyber threats targeting digital infrastructure.

- **Trade Barriers:** Despite high intent, the Free Trade Agreement (FTA) has faced delays due to complex regulatory and tariff structures in both economies.
- E.g. The 2026 Terms of Reference (ToR) for the FTA were signed only after years of negotiation to protect domestic manufacturing in both countries.

Way Ahead:

- **IMEC Implementation:** Accelerate the India-Middle East-Europe Economic Corridor to integrate Israel as a Mediterranean gateway for Indian goods.
- **Semiconductor Diplomacy:** Leverage Israel's chip-design prowess to fuel India's Atmanirbhar semiconductor missions in Dholera and other industrial nodes.
- **Water Security:** Scale the Ganges cleaning and desalination projects using Israeli Waste-to-Water technology as a model for all Indian states.
- **Academic Integration:** Operationalize the I2I Forum (Academic Cooperation Forum) to ensure that R&D moves from labs to commercial markets.
- **Deep-Tech Joint Ventures:** Transition from a buyer-seller relationship in defense to co-development and co-production under the 'Make in India' framework.

Conclusion:

- The elevation of ties to a Special Strategic Partnership reflects a mature relationship that has moved past traditional defense deals into the realms of AI, space, and food security. By integrating Israeli innovation with Indian scale, both nations are creating a blueprint for South-South and North-South cooperation. This partnership is not just a bilateral necessity but a pivotal pillar for stability in the emerging Indo-Abrahamic landscape.